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Contents

Introduction

The Katowice Conurbation is the largest metropolitan region in Poland. In the core zone there are 16 cities, followed by another 17 in the peripheral region. It is important to underline that the Katowice Conurbation makes up the largest shrinking region in Central and Eastern Europe.

The depopulation of the region has marked itself strongly in the 17% decrease of population, from 2 million 311.5 thousand in 1990 to 1 million 978.5 thousand in 2007. The fall was noticed in all cities of the Katowice Conurbation, including Katowice – the capital of the region, as well as the examined cities of Bytom and Sosnowiec. The shrinking cities of the Katowice Conurbation present the most spectacular example of socio-economic problems existing in the post-industrial area of the urban region.

Both above mentioned cities – Bytom and Sosnowiec have been analysed in the report as partially different types of urban centres in the view of city shrinkage.

Medieval Bytom, with its urban space similar to H. Hoyt's *sector model of urban land use*, differs slightly when compared to Sosnowiec, which was established in the beginning of the 20th century, with its urban space explained by C. Harris and E. Ullman in *multiple nuclei theory of urban structure*. Different political history, as well as, partially different economic functions of the cities, were consolidated after World War II into a visible spatial monolith.

Destruction of the monolith from the socio-economic point of view took place at the end of the 1980s. However, some symptoms of the upcoming demographic crisis surfaced in the 1980s and even in the 1970s.

Both cities entered new paths of development after 1990, but the paths differed – in the case of Sosnowiec, it was a reactional and simultaneously positive one, and in the case of Bytom – unfortunately, it was reactional, but at the same time a negative path.

Both cities, however, belong to the group of cities with a majority population outflow rather than inflow, and also belong to the group of urban centres with a negative image. It is significant to mention that in the research of *BAV Consulting*, as well as *KB Pretendent Agency* (www.bav.com), Bytom was

qualified as the most repulsive city in Poland in 2009. Unfortunately, Sosnowiec ranked high too.

The effects of city shrinkage are visible in both cities in the context of social and demographic models, economic processes or spatial changes.

As far as demographic problems are concerned, issues such as the decreasing number of persons in the average flat or household, or a lower index of the number of children in the average family, shall be brought to attention.

A decreasing unemployment rate has been a very positive element in recent years (around 12-16% in 2007), and is presently similar to the Polish average.

The problem of demographic decrease has been brought about mainly by the economic transformation and changes in the regional economic base. In the course of the last two decades, the model of an industrial city has been transformed into a model of a service city or a service and industrial city. The inflow of new investments is concentrated on, and directed to, only several cities. Sosnowiec constitutes a good example. Bytom, on the other hand, is unfortunately outside this network.

A positive element of the transformation is the fact that the technical infrastructure is in much better condition than it was 10-20 years ago, but there is still room for improvement, especially in the field of transport. A similar problem is posed in the case of housing. The problem results from the fact that the shrinking number of citizens increasingly use both kinds of infrastructure. The fact is, the growing number of houses and flats are occupied by a plummeting number of inhabitants. It is significant to mention that the society is growing older and earn relatively less. The municipal budget may be of limited help. An additional problem, in the case of Bytom, is caused by mining damages, with reference to both housing and infrastructure.

Bytom and Sosnowiec constitute two representative cities located in the post-industrial conurbation and they strongly experience all the problems determined by the shrinkage process. Both cities present similar examples of different methods of urban space improvement as well as the elimination of limits of frequently ambitious aims.

1. The Katowice Conurbation. Patterns of Urban Shrinkage

1.1. Reasons and Premises

Introduction

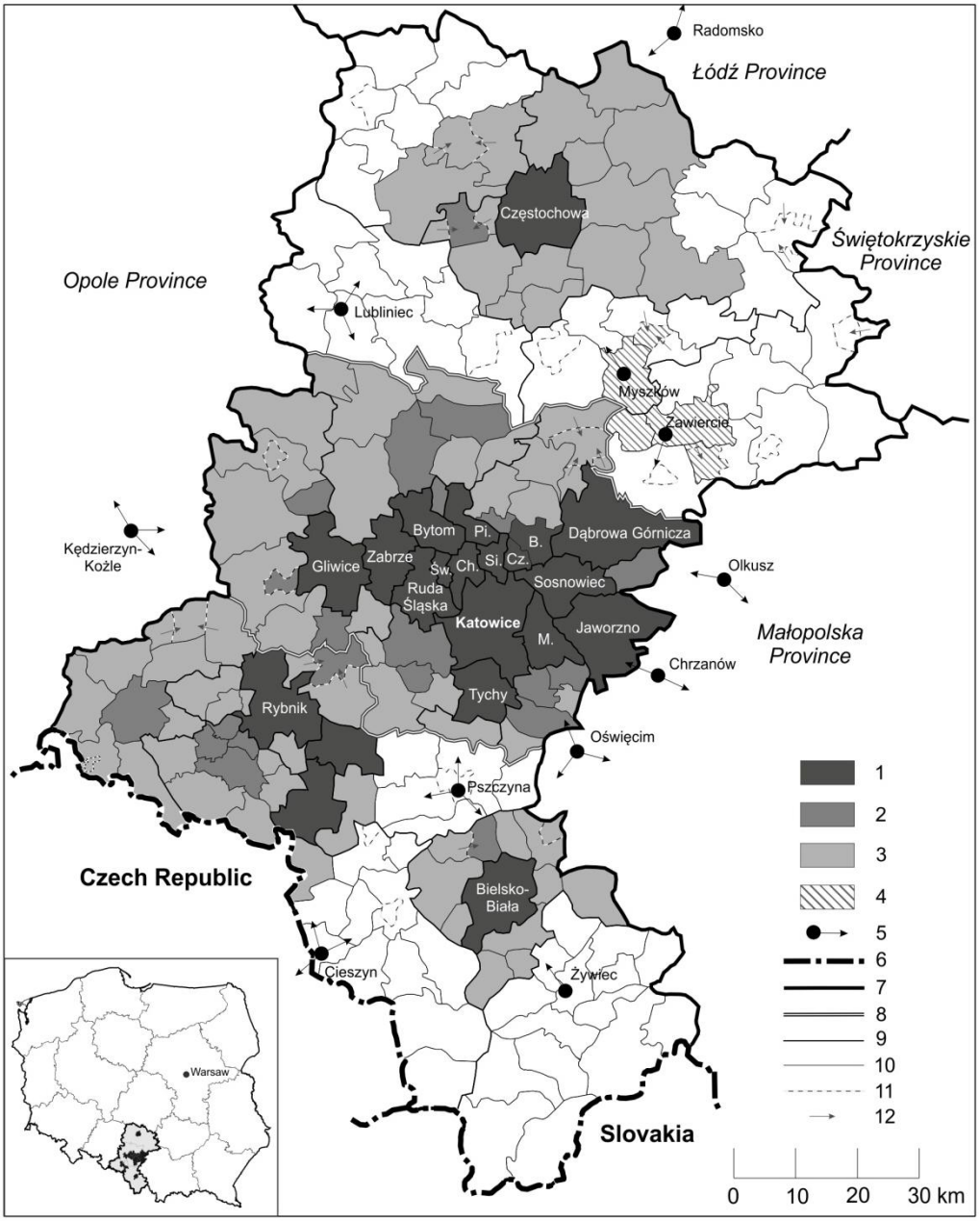
The Katowice Conurbation is the largest urban region in Poland and one of the largest in Central and Eastern Europe. The population of the conurbation is about 3 million and in the core area, about 2 million. In the case study of the Katowice Conurbation, only the core area was examined. In order to understand the region, it is important to acknowledge that the core area consists of the municipal region of GZM "Silesia," which stands for Górnośląsko-Zagłębiowska Metropolia "Silesia" (*in Polish*) and The Uppersilesian – Dąbrowa Basin Region Metropolis "Silesia" (*in English*).

In the core area of GZM there are 14 cities, all of which hold an administrative district (Polish – powiat) function – Bytom, Chorzów, Dąbrowa Górnicza, Gliwice, Jaworzno, Katowice, Mysłowice, Piekary Śląskie, Ruda Śląska, Siemianowice Śląskie, Sosnowiec, Świętochłowice, Tychy, Zabrze (figure 1); the remaining 17 cities are located in the inner and outer zone of the Katowice Conurbation. The index used for the study excluded two smaller towns of the core area of the Conurbation – Będzin and Czeladź. Both towns are located in the non-urban[1] Będzin administrative district (Polish – powiat). To summarize, the case study examines 14 cities – administrative districts – constituting the GZM with a thorough analysis of two cities – Bytom and Sosnowiec. In the further part of the book, the terms of the Katowice Conurbation and the core area of the Katowice Conurbation are used interchangeably with the term of the GZM region[2].

1 It is another problem to classify these two cities – many indexes are presented jointly for the city and the rural areas of the county.

2 After World War II, the term of GOP (Górnośląski Okręg Przemysłowy/Upper-Silesian Industrial Region) was introduced. It, however, refers to the industrial region, not urban region. The GOP is the subject of industrial geography studies only.

Figure 1. The Katowice Conurbation on the background of urban agglomerations in the Silesian Province



Explanations:

1 – cores of urban agglomerations, 2 – internal zones of urban agglomerations, 3 – external zones of urban agglomerations, 4 – other urban agglomerations, 5 – regional centers and directions of main connections, 6 – borders of countries, 7 – borders of the Silesian Province, 8 – borders of the Katowice conurbation, 9 – borders of counties, 10 – borders of administrative units (gminas), 11 – borders of towns localized inside of urban-rural units, 12 – directions of administrative hierarchy inside administrative units; B. – Będzin, Ch. – Chorzów, Cz. – Czeladź, M. – Mysłowice, Pi. – Piekary Śląskie, Si. – Siemianowice Śląskie, Św. – Świętochłowice.

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

Demographics (population development and migration)

In 2008 the GZM was populated by 2 million inhabitants. It is about 300 thousand less than in 1990 (table 1). The demographic potential of a large group of 300 thousand inhabitants may be compared to the current population of Katowice – the capital of the region. At the same time, Bytom lost 20% of inhabitants and Sosnowiec 14%. From another point of view, the population index in Bytom is at the same level as it was in 1960, and in the case of Sosnowiec, the one of 1978. The 1978 level characterizes the whole GZM region (table 1).

The continuous decrease in the population of the region and the examined cities is one of the main factors describing the process of shrinkage. What are the demographic causes of the situation?

The first issue is the territorial aspect of continuous depopulation. Whereas the typical example of the phenomenon was the city of Chorzów at the end of the 1970s, at present, all the cities of the conurbation face the same reality.

Secondly, it should be emphasized that 1982 marked the end of centuries-old migration inflow. It was the end of the process that carried fundamental importance in the population growth in the GZM region. Since the beginning of the 1980s, the inter-regional factors of population change have been of great meaning.

Table 1. Population of cities in the Katowice Conurbation – core area 1955-2007

Cities	1955	1960	1965	1970	1975	1980	1985	1990	1995	2001	2005	2007
Katowice	199.9	270.3	286.0	305.0	343.7	355.1	363.3	366.8	351.5	338.0	317.2	312.2
Sosnowiec	**124.4**	**131.7**	**139.8**	**145.0**	**195.7**	**246.1**	**256.5**	**259.4**	**247.5**	**239.8**	**226.0**	**222.6**
Gliwice	134.8	150.2	163.4	172.0	197.2	197.5	209.7	214.2	213.4	208.4	199.5	197.4
Zabrze	182.8	190.9	198.5	197.0	203.7	196.0	198.4	205.0	201.3	196.5	191.2	189.0
Bytom	**180.7**	**182.6**	**191.0**	**187.5**	**234.4**	**234.3**	**238.9**	**231.2**	**226.8**	**200.2**	**187.9**	**184.8**
Ruda Śląska	38.9	131.7	141.2	143.0	149.6	159.1	166.1	171.0	165.9	153.0	146.6	144.6
Tychy	26.6	49.9	63.9	71.5	135.6	166.6	183.8	191.7	133.8	130.4	131.2	129.8
Dąbrowa Górn.	41.2	55.5	60.4	61.7	79.8	141.4	138.1	136.9	130.4	129.7	130.1	128.8
Chorzów	141.4	146.6	153.7	151.9	156.3	150.1	142.0	131.9	125.2	119.5	114.7	113.7
Jaworzno	31.1	53.1	60.4	63.6	74.5	89.3	95.9	99.5	98.2	97.1	96.2	95.5
Mysłowice	40.3	40.2	43.5	44.7	61.7	79.8	88.2	93.8	97.8	78.7	75.2	74.9
Siemianowice Śl.	59.4	62.4	66.1	67.7	72.1	77.1	81.4	81.1	78.1	76.1	72.7	71.6
Piekary Śląskie	26.6	32.2	35.6	36.4	62.1	64.3	68.7	68.5	67.0	65.0	59.7	59.1
Świętochłowice	56.3	57.4	58.1	57.8	58.4	58.7	60.7	60.5	59.6	58.2	55.3	54.5
The GZM - region	**1284.4**	**1554.7**	**1661.6**	**1704.8**	**2024.8**	**2215.4**	**2291.7**	**2311.5**	**2196.5**	**2090.6**	**2003.5**	**1978.5**

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

Thirdly, one should notice the decrease in the attractiveness of the region as a place of unlimited possibilities of finding employment in the industrial sector. The economic decline and problems in the housing market especially affected the cities with populations exceeding 100 thousand. These two factors extended and enhanced the decrease phase of the demographic cycle. The demographic crisis was taken advantage of by smaller towns and rural administrative units (Polish – gmina). The nineties constituted a period when the process of suburbanization around the conurbation core emerged. The situation was especially distinct in the eastern part of the Katowice Conurbation. The fact is that the process of *urban sprawl* has been present in the Katowice region for only 20 years. 1993 was the first year when the administrative urban units (Polish – gmina) of the Silesian Province (in the 1990s – Katowice Province) noted a drop in population, while a rise in population was recorded in the rural administrative units.

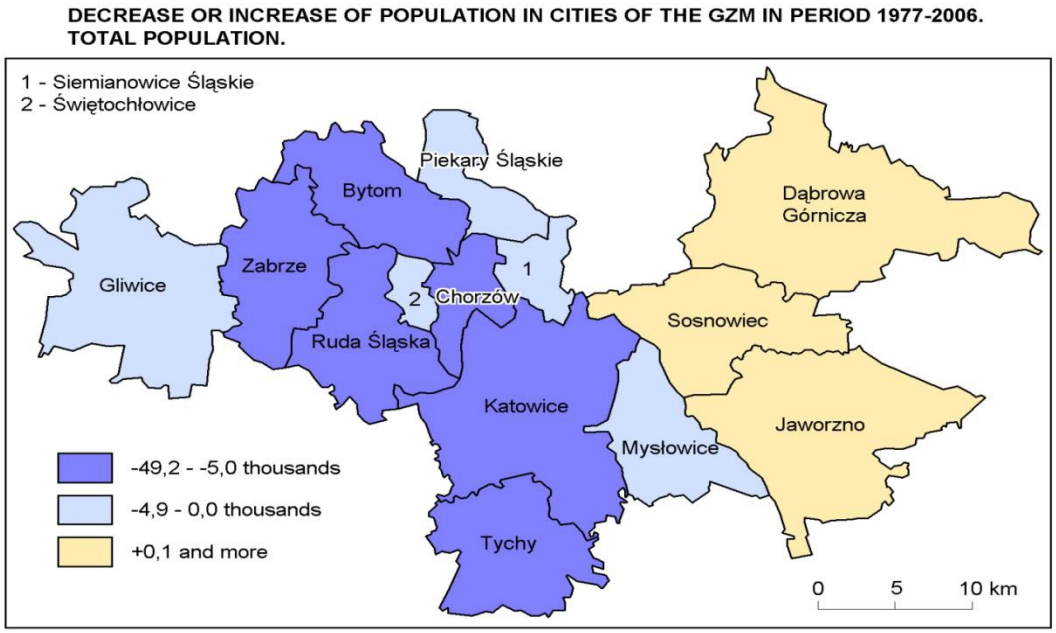
Another issue is the extraordinary situation of the Katowice Conurbation, taking into consideration the classical arrangement of urbanization, that is: suburbanization zone A – suburbanization zone B, etc.

The analysis of a concise number in population change in the period 1977-2006 reveals the existence of three city types (see figure 2 below).

The first type is the *centre of "depopulation crater"* as an inner-conurbation, demographic structure and it includes the cities of Bytom, Chorzów, Katowice, Zabrze, Będzin, Tychy and Ruda Śląska. Each of these cities noticed a drop of over 10 thousand inhabitants, meaning that in 2007 the population was lower than in 1977, even though in the 1980s and 1990s the number was periodically higher. The inclusion of a particular city in the crater depended on a number of factors. In the case of Bytom or Chorzów, the examined demographic development factor appeared at the end of the 18th century and in the beginning of the 19th century and consisted in the connection of steel-working and coal-mining. The area of the cities was developed relatively quickly however, on the other hand, other towns and urbanized communes surrounded Bytom and Chorzów. The 19th century marked the period when the possibilities of development of the above mentioned towns, in the range of new housing quarters, were used up. A similar phenomenon is presently observed in Chorzów and Bytom, where the level of population decrease and out-migrations are high (including international migrations). The lack of other factors that might stimulate the development of urban space leads to an unfavourable demographic situation. The position of Katowice in the group appears

surprising, nevertheless it should be noticed that regional (provincial) centre have always been characterized by a high index of rotating migration. On the other hand, the capital of the province has been generating a high percentage of migrant employment. In the case of Będzin, two factors contributed to the population loss; the creation of the separate town of Wojkowice from Będzin in 1993 and also a visible natural decrease and migration decrease.

Figure 2. "A crater" of depopulation and two demographic zones in the core of the Katowice Conurbation



Source: R. Krzysztofik, J. Runge.

It is interesting that the hierarchy of cities in the Katowice Conurbation, in the case of population decrease, is independent from the question of indigenous inhabitants. It shows that the high percentage of indigenous inhabitants should correlate with a lower population index decrease as a result of phenomena like contacts or the feeling of belonging to a local community. In the presented region, the opposite happened. For instance, the city of Katowice with 50% indigenous inhabitants, is experiencing higher than expected population loss, considering the ratio per 1000 people. The city of Mysłowice is facing a similar situation, while Gliwice presents the opposite.

The second zone is referred as the *surroundings of depopulation "crater"* (Gliwice, Mysłowice, Piekary Śląskie, Siemianowice Śląskie, Świętochłowice).

The zone, in its western part more than the eastern part, shows a relatively higher index of population decrease. Similar to the *centre of the "crater"*, no connection is shown between the index of decrease and the percentage of indigenous inhabitants.

The third group of cities in the Katowice Conurbation (Dąbrowa Górnicza, Jaworzno, Sosnowiec), noted a population increase in the period of 1977-2006. The increase resulted from migration inflow in the 1970s and was brought about by several factors, including the construction of the biggest steelworks in Poland – *Huta Katowice*). Despite the fact of the rejuvenation of the demographic structure in the eastern part of the Katowice Conurbation, here also, a distinct natural decrease and migration decrease may be observed.

In general, the differences between the model of urbanization phases and the real changes in the population in the GZM region primarily result from the effects of the administrative and economic decisions and secondly, from the regional character of the demographic cycle.

The issue of city shrinkage in the Katowice Conurbation is clearly visible from the point of view of migration. Several questions referring to the migration of people are similar in the two discussed cities – Bytom and Sosnowiec, several have different conditions. The first major question is the final character of the phenomenon, that is, the balance of migration and its dynamics. The similarity of the two cities lies in the fact that since the mid-1990's, they have been recording a permanent negative balance of net migration (Bytom since 1994 and Sosnowiec since 1993). Until that time, Sosnowiec had had mostly a negative balance and in Bytom, it had been changeable – positive and negative, with the majority negative. This remark proves that the issue of shrinkage in both cities, from this point of view, came from two diverse paths of development. The negative migration balance in Bytom, in a majority of the noted years, was balanced by positive natural income. From the 1990's though, it is so limited that it is not capable of making up for the plunging number of emigrating inhabitants. Sosnowiec, until the mid-1990's, had seen a high indicator of both migration, as well as positive natural increase.

The impulsiveness of the migration processes manifested itself in two ways – in the highest indexes of the inflow migration in Sosnowiec, and the highest indexes of the outflow migration in Bytom.

As many as 6 highest values out of 7 of the inflow migration (exceeding 6,000 inhabitants) in the period of 1969-2008 refer to Sosnowiec. The record year here was 1979, when a number of 14,060 new inhabitants registered to live here. For Bytom, the record year was 1976 when 6,223 new inhabitants settled here.

The situation was opposite in the case of the outflow migration. As many as eight out of nine highest values (exceeding 4,450 inhabitants) referred to Bytom. In the record year of 1979, as many as 6,059 people left the city. To compare, the highest number for Sosnowiec was 4,451 in 1981.

An extremely important issue was the one of the directions of inflow and outflow migration. In the case of migration inflow in both cities, the new inhabitants mainly migrated from small towns and villages of the Świętokrzyskie, Podkarpackie, Lubelskie, Łódzkie and Małopolskie Provinces. The migration of people within the bigger cities of the Silesian Province, and especially the Katowice Conurbation, was of importance as well.

The differences refer to the migration outflow. In the case of Bytom, a crucial role was played by migration abroad, specifically to Germany. In periods of the 1970's, their numbers amounted to about 40%. In 1976, for example, out of the number of 5,975 people who unregistered, 2,136 emigrated abroad. In the following years, the number of Bytom inhabitants emigrating abroad decreased and its participation was changeable, with the highest rate noticed in 2000 equalling about 44%. In the case of Sosnowiec, until the middle of the first decade of the 21st century, it was of lesser importance. After the period, the participation increased to 15-20%. Unlike in Bytom, it is mostly migration to Great Britain and Ireland (figure 3). It should be taken into account that in the case of Sosnowiec, the actual indicator of migration is significantly higher, due to the fact of de facto, mostly not registered departures. This comes as a result of the assumption of the migrants that they only depart for several months or a year. In a vast majority, the period is and will be extended.

In the Katowice Conurbation, suburbanization poses a quite specific problem. In contrast to monocentric agglomerations, a part of inhabitants move to the more scenic Beskidy mountain areas in the south of the province, and to the Kraków-Częstochowa Highland, in the north-eastern part of the Silesian Province (figure 4). The suburbanization is becoming more visible in the southern part of the Conurbation than in its northern areas. In the Katowice Conurbation, the phenomenon of “inner suburbanization” is noticeable. It consists in the

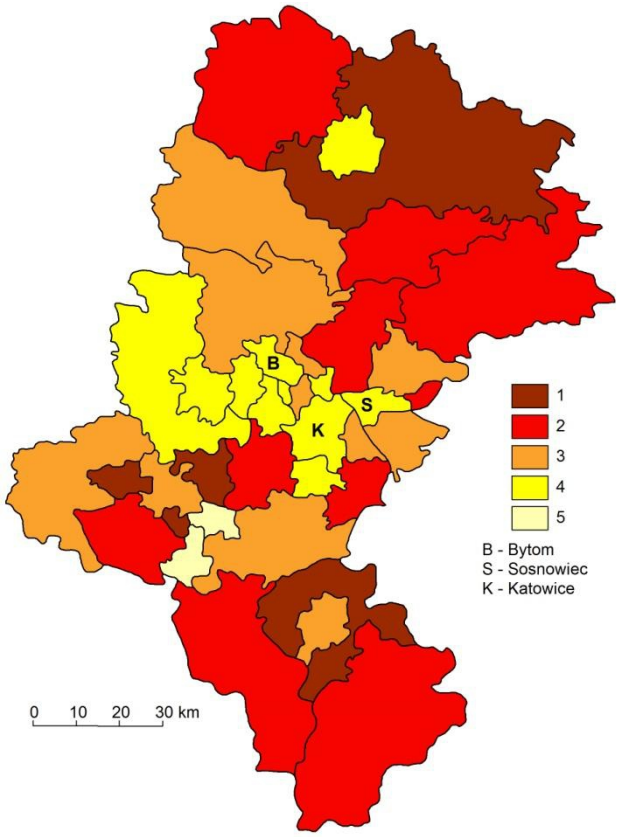
establishment of neighbourhoods typical for suburbia, within the administrative limits of the city. It comes as a result of the fact that within certain big cities there are areas that are attractive from the point of view of the landscape and they are also easily accessible from the city centre, as far as transportation is concerned. These areas are of a comparable price as those located in the suburbia. Additionally, the suburban landscape is frequently marked with the big chimneys of industrial buildings that are partly located in the area.

Figure 3. "Katowice" Airport – a gateway of foreign migration in the Katowice Conurbation

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga

A very characteristic phenomenon is that of daily pendular migration, connected with commuting, and referring to both Bytom and Sosnowiec. People commute mainly to work in Katowice (services). The estimated number of commuters from Sosnowiec is about 30 thousand and from Bytom about 5-10 thousand. In the case of Sosnowiec, commuting to work in the industrial plants of Dąbrowa Górnicza ("Katowice" Steelworks, "Przyjaźn" Coking-plant) is also noticeable. In the case of Bytom, people commute to work in the industrial plants of Zabrze, Piekary Śląskie, and Ruda Śląska.

Figure 4. Net migration for permanent residence per 1000 population in 2008



Explanations: B – Bytom, K – Katowice, S – Sosnowiec. 1) 2.0:5.9, 2) 0.0:2.0, 3) -3.0:0.0, 4) -6,0:-3.0, 5) -9.0:-6.0.

Source: Statistical Office in Katowice, 2008.

Economic Development

The most significant factor of urban decrease in the Katowice Conurbation was the economic depression that took place in the 1990s. The changes that followed were both quantitative (the decrease in the number of factories) as well as qualitative (the collapse of some branches of industry). The region had been famous for its coal-mining, metallurgy, coking industry, engineering industry and others.

The socio-economic changes of the beginning of the 1990s acted as a condition test for specific branches of industry and factories. For instance, tables: 49, 50, 51 in the Annex present the scale of changes in coal-mining. Presently, only 8 traditional coal-mining centres have been preserved in the GZM region out of the former 14. There is only one coal mine in 5 cities, including Bytom and Sosnowiec.

The decrease in employment in the coal-mining sector in Bytom and Sosnowiec is presented in tables 50 and 51. It is important to underline that the decrease in employment was noted in the whole sector, as well as, in individual coal mines. The importance of coal-mining in the 1980s and its lesser meaning in present times is reflected in the percentage of employment in the industry in both cities. The number of employed in coal-mining in 1988 was close to 50%, in comparison with the present index of only 12%.

Coal-mining is like a litmus paper of the traditional economy in the Katowice region. A similar situation takes place in metallurgy, the coking industry and engineering industry of the older type. The clothing industry has almost totally collapsed. For example, in Sosnowiec in 1988, three large clothing factories operated there, each employing over 1000 workers. All of these have closed.

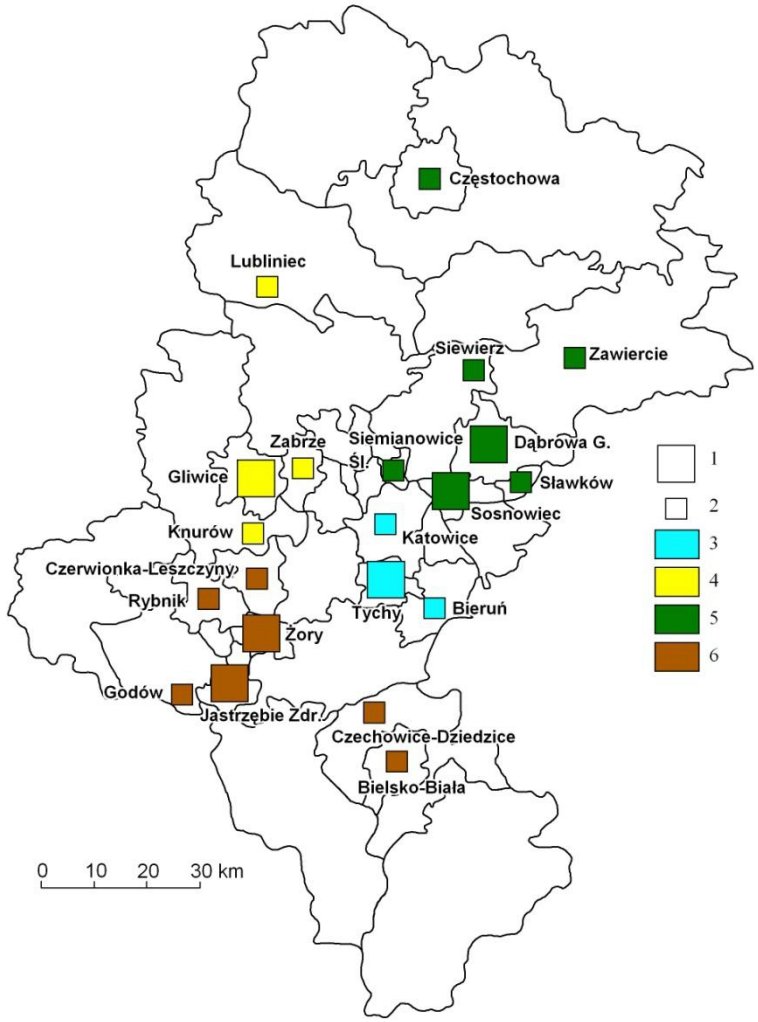
There have also been some positive effects brought about by economic and social changes. The most crucial was the establishment of the Katowice Special Economic Zone with factories and other economic enterprises in Dąbrowa Górnicza, Gliwice, Katowice, Siemianowice Śląskie, Sosnowiec, Tychy, Zabrze and other towns of the Silesian Province. Unfortunately, Bytom is located outside the KSEZ network (figure 5).

The benefits of new investment in the case of Sosnowiec are presented in table 53. The employment in all factories of the Sosnowiec part of the KSEZ network compensates for the number of miners in one closed coal mine in the examined city. It is significant to notice that in proximity to the KSEZ investments, appear other companies in Sosnowiec, such as Haerus Electronite (with Belgian and Luxembourg capital) in the Narutowicza area or Hoermann (with German capital) in the Milowice area.

It is also interesting that the special KSEZ zones act as development stimulus to the quarters connected with the so called new economic development, which was pointed out in table 54. Two factors played an important role here, namely the location of the KSEZ areas and the proximity of main (national) roads in the region (with the special role of double lane roads).

This factor should be significant for the northern suburbs of the city of Bytom in the future, and is connected with the building of the A1 motorway Southern Europe to Gdańsk. The future motorway will intersect with national road no. 11, in the Stroszek quarter, and should stimulate the development of the quarter, as well as the whole city.

Figure 5. Centres of The Katowice Special Economic Zone on the area of the Silesian Province



Explanations: 1 – main centres, 2 – other centres, 3 – The Tychy Subzone, 4 – The Gliwice Subzone, 5 – The Sosnowiec-Dąbrowa Subzone, 6 – The Jastrzębie-Żory Subzone.

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

Bytom and Sosnowiec have been on two different paths of development in the last decade. Coal-mining and other branches of traditional industries collapsed first in the eastern part of the Katowice Conurbation (The Dąbrowa Basin subregion), including Sosnowiec. Enormous unemployment contributed to the fact that Sosnowiec and Dąbrowa Górnicza were ranked in the group of cities with a high index of socio-economic problems, determined by the phenomenon. Relatively positive conditions for coal-mining and other traditional industries in the western part of the Katowice Conurbation, as well as the policy of local and central

authorities have caused that new investments be located in Gliwice and partly in Zabrze. It must have been a mistake, according to the theory of *the path dependence* by Mahoney, that Bytom was excluded in the plans of the KSEZ zone. K. Gwosdz (2004 and unpublished materials of 2008) distinguished paths of dependence for the cities of the Katowice Conurbation. A compilation of the study is presented in table 2.

In the big cities of the Katowice Conurbation, one should notice a correlation between the level of socio-economic development and new investments concentrated mainly in industrial complexes. It would be a cliché to point out that the level of social development is determined by the economic condition. The details of the relationship are noticeable in the case of larger cities of the described region.

Table 2. Paths dependence of cities in the Katowice Conurbation since the 19'th to the beginning of the 21'st century

		MECHANISM		
		SELF-REINFORCING	**REACTIVE**	**OTHER**
EFFECT	**POSITIVE**	Katowice	Gliwice, Tychy, Sosnowiec	Tarnowskie Góry, Mikołów
	NEGATIVE	Piekary Śląskie, Ruda Śląska, Świętochłowice, Siemianowice Śląskie, Dąbrowa Górnicza, Jaworzno	Bytom, Mysłowice	Zabrze, Chorzów

Source: Gwosdz, 2004, 2008.

Settlement System

The GZM region is seen as a "grate" of the Katowice Conurbation, as a poly-centric settlement form. The Conurbation emerged at the end of the 18th century as a consequence of the first wave of the industrialization process, and also as a political factor (the border of two countries – Poland and Prussia, later Russia and Prussia). Large scale urbanization and industrialization was highlighted in the 19th and in the beginning of the 20th century. The region was created by hundreds of coal mines, coal shafts and thousands of larger and smaller industrial plants from Gliwice to Dąbrowa Górnicza. Another factor was the international competition between Prussia (Germany), Russia and the Austro-Hungarian Monarchy. "The

Triangle of Three Emperors" (now in Sosnowiec and in Mysłowice) was not just a symbolic point on the map of Europe in those times.

The industrial and coal-mining genesis of the region determined the typical poly-centric arrangement of the urbanized settlement network. The poly-centric character of the settlement system had its specific structures, both internal and external. There were a few exceptions including the cities founded in medieval times: Bytom and Gliwice and in the 19th century, newly-founded gateway cities: Katowice and Sosnowiec.

The settlement arrangement of the region consisted of about one hundred quarters (settlements) centred around 30 administrative units: larger cities, towns and urbanized communes. It was one concise and homogeneous, single-function "block" of settlements. The administrative borders between particular units were practically invisible from a geographical point of view. A new phase of development took place in the 1980s and 1990s. New socio-economic conditions lead to a crack of the block along its administrative borders. A typical form of the so called technical conurbation was transformed into a mixed type: a technical conurbation (continuation of the former settlement structure) a poly-centric agglomeration (the role of Katowice, Gliwice, Sosnowiec and Tychy) and partly also a mono-centric agglomeration (the role of Katowice).

The development of cities in the Katowice region had been based on centrifugal force until the 1990s. Since then, one may observe an increase of connections conditioned by centripetal force. The development of cities like Katowice, Gliwice or Sosnowiec demonstrates the process in the best way. In the settlement structure of the Katowice Conurbation, phenomena of interurban competition, self-government, new ways of economic development, problem development, sustainable development and development of creative urban zones and others have been initiated. The last 20 years have proved to be years of playing for the highest stake, that is for dominance in the region, at various levels, and in different subregions. The initial effect of the game resulted in a new subregional division of the region into the Katowice subregion, the Sosnowiec subregion, the Tychy subregion, the Gliwice subregion and the Bytom subregion. The area of new statistical subregions includes the Katowice Conurbation as well as some outer counties.

The region is divided, and every year each interurban competition is becoming more and more noticeable, however, city authorities undertake some

joint actions towards activities aiming outside the region, drawing correct conclusions that the agglomerations of Wrocław, Kraków, Poznań or Łódź pose real competition.

The two examined cities of Bytom and Sosnowiec had had different spatial and functional arrangements until World War II. The urban space of Bytom is arranged similarly to Hoyt's *sector model of urban land use*, partly modified in Lawton's and Hopkinson's models. Both modifications point out the role of industrial factors in creating urban zones, especially in the 19th and in the first half of the 20th century. The Sosnowiec urban space is typical as of the *multiple nuclei theory of urban structure* by C. Harris and E. Ullman (Daniel, Hopkinson, 1989). In this case the spatial-functional zones develop around a number of quite separate discrete nuclei depend on the size of the city.

The former arrangement of space in Bytom and Sosnowiec was modified in the post-war socialist period. The city space, with the exception of central quarters and big block-settlements (Zagórze in Sosnowiec and Stroszek/Osiedle Gen. J. Ziętka in Bytom), was homogeneous and monofuctional with simultaneously overlapping industrial and residential types (figure 6).

A new stage of development was initiated in the 1990s. The collapse of industry and coal-mining lead to the creation of space that referred to the pre-war space, based on the above mentioned models. It is important to mention that the proximity of Katowice had its impact on the creation of the spatial and functional structure of the western quarters of Sosnowiec.

A new element in the spatial and functional structure of Sosnowiec, and to a certain degree, also in Bytom, is the linear-type structure of economic activities located along main roads and in the wasteland areas (new industries, logistics centres, specialized services, education, and shopping centres). Some of these develop simultaneously with new residential quarters (Józefów – northern Zagórze in Sosnowiec). The new areas may be explained as *a tertiary business core* in P. Hall's model (2003), at the level of development described as initial or intermediate.

Figure 6. Sosnowiec-Zagórze. The biggest block-settlement in Sosnowiec

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

Other Factors

The issue that should be addressed in the case of the decline of urban and demographic status is the level of both central and metropolitan functions. In the national Polish and provincial hierarchy, the cities of the GZM-region present a low level of these functions. Table 56 and table 57 present the position of the subregional city of Gliwice as well as mezoregional cities of Bytom and Sosnowiec. Although Gliwice is ranked very high, it belongs to the group of cities that scored fewer points or whose population is lesser. Sosnowiec and its ranking may be described in a comparable manner as far as the mezoregional centres are concerned (figure 7).

Bytom and other big cities of the GZM-region ranked surprisingly low. Bytom and Zabrze were classified with towns as much as ten times smaller, such as Kłobuck or Skoczów. The reasons of the described situation have generated from a considerable density of cities and permanent limitation of its hinterlands. It is a factor of omnipresent spatial competition and weakness in creating and developing central and metropolitan functions.

Figure 7. The Medical University of Silesia. New building in Sosnowiec

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

1.2. Trajectories of Urban Shrinkage

Spatial-Temporal Patterns

Twenty years ago, D. Clark (1989) wrote: "British cities are in decline. Population levels are falling, the industrial base is shrinking and the governmental and financial powers and autonomy of the city are being eroded". Five to ten years ago, an analogous situation happened in bigger cities of the Katowice region, as well as, all over Poland. The reasons for, and dependences of this feature, are described in the previous parts of the dissertation; this chapter presents the dynamics of the shrinkage process, both in the Katowice Conurbation and in the examined cities of Bytom and Sosnowiec.

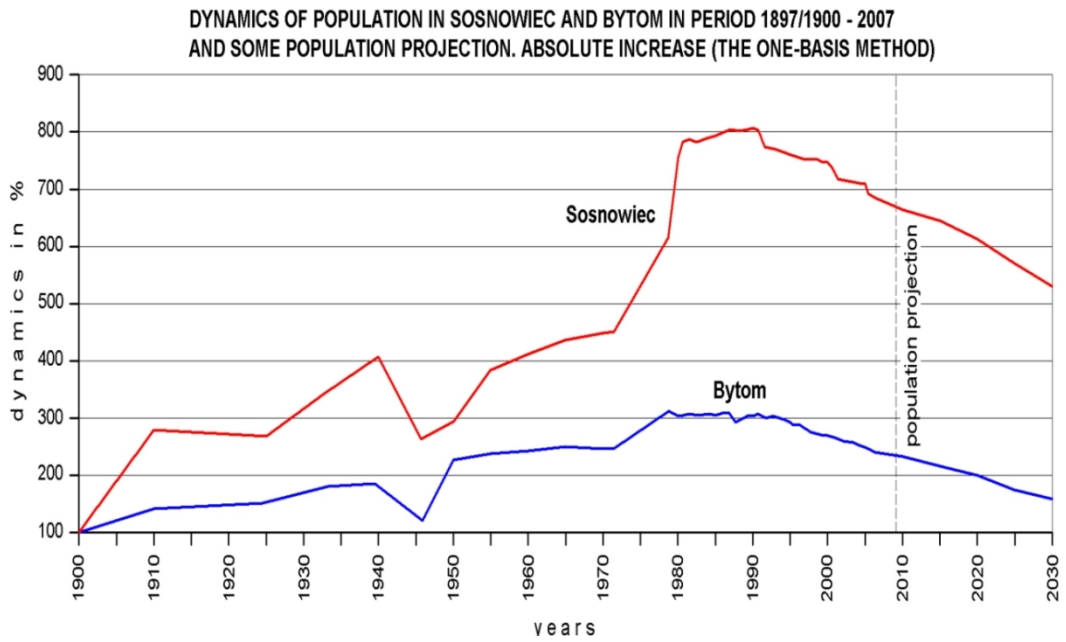
The demographic decline is shown in figure 8 below as well as in tables 16, 17, 18 and 19 in Annex. Table 3 below presents the depopulation of the inter-regional structure according to cities as basic statistical units.

In the first examined period 1897/1900-1910 a considerable population growth of about 37.9% (28.9 thousand) in Bytom and 175.5% (56.7 thousand) in Sosnowiec was observed. The noticeable growth of population was determined by the continued process of a sudden increase of industrialization and granting the city status of Sosnowiec. Civic rights were granted to Sosnowiec in 1902. Such an enormous growth of population has not happened again in the history of both cities.

The next period that finished in the 1920s is characterized by a slow drop in the population development of Bytom and a small decrease in the case of Sosnowiec. It was obviously caused by the war period and political changes. Both cities suffered losses in population despite the fact that the front-line was remote. Sosnowiec faced an especially dramatic situation, where thousands of people left the city in the first months of the war in 1914 and only a part of them returned (table 4).

The depopulation came as a result of considerable external migrations that were not compensated for even by the decision to incorporate a few urbanized communes into Sosnowiec (1915), such as: Modrzejów, Milowice, Środula, Dębowa Góra and part of Zagórze, with a total population of approximately 10 thousand (table 4) and an area of 30.5 km².

Figure 8. Bytom and Sosnowiec: trajectories of growth and shrinkage



Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

Table 3. Dynamics of population in Bytom and Sosnowiec 1897/1900-2007 and some population projection

YEAR	BYTOM			SOSNOWIEC		
	POPULATION	DYNAMICS	DYNAMICS	POPULATION	DYNAMICS	DYNAMICS
1897*S*/1900*B*	76.2	-	*100.0%*	32.3	-	100.0%
1910	105.1	*37.9%*	*137.9%*	89.0	175.5%	275.5%
1921*S*/1925*B*	114.9	*9.3%*	*150.8%*	86.5	-2.9%	267.8%
1931*S*/1933*B*	138.5	*20.5%*	*181.7%*	109.0	26%	337.5%
1939	140.1	*0.1%*	*183.8%*	129.6	18.9%	401.2%
1946!!	93.2	*-33.4%*	*122.3%*	84.3	-34.9%	260.9%
1950!!	174.0	*86.7%*	*228.3%*	96.4	14.3%	298.4%
1955	180.7	*3.8%*	*237.1%*	124.4	29.0%	385.1%
1960!!	182.6	*0.1%*	*239.6%*	131.7	5.9%	407.7%
1965	191.0	*0.4%*	*250.6%*	139.8	6.1%	432.8%
1970	187.5	*-0.2%*	*246.1%*	145.0	3.7%	448.9%
1972	189.1	*0.1%*	*248.2%*	146.1	0.7%	452.3%
1975!! (1978)	234.4*	*23.9%*	*307.6%*	197.9*	35.4%	612.7%
1980	234.3	*-0.1%*	*307.5%*	246.1	24.4%	761.9%
1981	237.8	*1.5%*	*312.1%*	251.9	2.4%	779.9%
1982	238.2	*0.1%*	*312.6%*	255.9	1.6%	792.3%
1983	238.1	*-0.1%*	*312.5%*	252.0	-1.5%	780.2%
1984	239.2	*0.1%*	*313.9%*	255.0	1.2%	789.5%
1985	238.9	*-0.1%*	*313.5%*	256.4	0.5%	793.8%
1986	239.4	*-0.1%*	*314.2%*	258.1	0.7%	799.1%
1987	239.8	*0.1%*	*314.7%*	259.9	0.7%	804.6%
1988	227.9!!	*-4.9%*	*299.1%*	258.6	-0.5%	800.6%
1989	229.8	*0.1%*	*301.6%*	259.3	-0.2%	802.8%
1990	231.2	*1.0%*	*303.4%*	259.4	-0.1%	803.1%
1991	232.2	*0.4%*	*304.7%*	259.0	-0.2%	801.8%
1992	229.2	*-1.1%*	*300.8%*	251.3	-3.0%	778.0%
1993	229.6	*-0.2%*	*301.3%*	250.4	-0.3%	775.2%
1994	228.2	*-0.6%*	*299.5%*	248.9	-0.6%	770.6%
1995	226.8	*-0.6%*	*297.6%*	247.5	-0.6%	766.2%
1996	225.3	*-0.4%*	*295.7%*	246.3	-0.5%	762.5%
1997	225.8	*0.2%*	*296.3%*	244.1	-0.9%	755.7%
1998	205.6**	*-8.9%*	*269.8%*	244.1	0.0%	755.1%
1999	203.8	*-0.9%*	*267.4%*	242.3	-0.7%	750.1%
2000	201.9	*-0.9%*	*264.9%*	241.1	-0.5%	746.4%
2001	200.2	*-0.8%*	*262.7%*	239.8	-0.5%	742.4%
2002	192.6!!	*-3.8%*	*252.7%*	231.0	-3.7%	715.2%
2003	191.1	*-0.8%*	*250.8%*	229.9	-0.5%	711.8%
2004	189.5	*-0.8%*	*248.7%*	228.1	-0.8%	706.2%
2005	187.9	*-0.8%*	*246.5%*	227.2	-0.4%	703.4%
2006	186.5	*-0.7%*	*244.7%*	224.2	-1.3%	694.1%
2007	184.8	*-0.9%*	*242.5%*	222.6	-0.7%	689.2%

YEAR	BYTOM			SOSNOWIEC		
	POPULATION	DYNAMICS	DYNAMICS	POPULATION	DYNAMICS	DYNAMICS
POPULATION PROJECTION						
2010	*176.6*	*-4.4%*	*231.7%*	*219.0*	-1.6%	678.0%
2015	*164.9*	*-6.6%*	*216.4%*	*209.2*	-4.5%	647.7%
2020	*152.4*	*-7.6%*	*200.0%*	*197.8*	-5.4%	612.4%
2025	*139.3*	*-8.6%*	*182.8%*	*184.6*	-6.7%	571.5%
2030	*126.1*	*-9.5%*	*165.5%*	*170.3*	-7.7%	527.5%

Explanations: !!-national census; *-correct of territory *in plus*; **-correct of territory *in minus*; B-Bytom, S-Sosnowiec.

Source: SR. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Yearbook of Śląskie Voivodship, 2008; J. Ziółkowski, 1960 and A. Gawryszewski, 2005.

An important factor in those times was the translocation of the Polish-German border nearer Bytom and farther from Sosnowiec. In the case of Bytom, it presented a problem of economic and social hinterland losses (Bytom, at the time, was situated on a characteristic, political peninsula) as well as losses of an urban enclave (Schwartzwald – Czarny Las, presently Nowy Bytom – part of Ruda Śląska) which was incorporated into Poland after the division of Upper Silesia in the beginning of the 1920s. In the case of Sosnowiec, the shift of the border resulted in reduced employment in economic activities connected with gateway city functions at the time (border-guard, border-administration, wholesale, trade, transport, hotels and restaurants). A majority of Russians (employed in administration or in border-guard) and Germans (employed in industry) who had lived in the area until World War I, returned to the USSR (Russia) and Germany.

The inter-war period constituted a phase of population development in both described cities. Several factors of different nature played a role in this.

For example, in Bytom, the first important issue was the incorporation of the strongly urbanized commune of Rozbark (Rosenberg) in 1927 and parts of Miechowice (Miechowitz) and Stolarzowice (Stollarzowitz) communes in 1928. At the time, Sosnowiec did not experience any administrative changes.

In spite of the inter-war economic crisis in the world, the development of both cities can be described as quite positive. Development was noticed in coal-mining and other branches of industry, a fairly good situation was in service and trade. The percentage of population in Bytom equalled 17% in the period of 1925-1933 and only 1.1% in the period of 1933-1939. The total for the period of 1925-1939 reached 21.9%. The population increased from 114.9 thousand in 1925 to 140.1 thousand in 1939 (figure 8). It should be emphasized that Bytom, in 1939,

was the greatest (demographically) city of the Upper Silesia and the contemporary Katowice region.

Figure 9. Old buildings dominate in central part of Bytom city

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

World War II lead to a catastrophe in population development both in Sosnowiec and in Bytom. In the period 1939-1946, Bytom lost 46.9 thousand inhabitants and Sosnowiec 51.7 thousand inhabitants. The reasons for the high depopulation in both examined cities were partly different and partly identical. The primary factor was common to both cities, and it was the ethnic aspect.

Table 4. Population of Sosnowiec in the period 1914-1916

Date	Total	Men	Women
01.01.1914	118.5	71.9	46.6
01.10.1914	51.8	24.6	27.2
01.09.1915	56.9	25.6	31.3
20.11.1916	69.9	33.4	36.5

Source: Ziółkowski, 1960, p. 204.

The majority (no less than 60-65%) of the population in pre-war Bytom comprised of Germans. By the time the war ended, 1944-1945, most of them had left the city and emigrated west (to Germany). The migration waves could also be seen after 1946, until present. Another part of the population, Poles and Silesians, migrated and settled in Lower Silesia. Thousands (both Germans and Silesians) were deported by the Soviets to the USSR (Siberia).

The ethnic factor was also noticeable in Sosnowiec. About 22% (28.9 thousand in 1938) of population in Sosnowiec was comprised of Jews. At the end of 1943, the Nazis shot 10 thousand Jews in the Sosnowiec ghetto. Poles were deported to Germany in the years 1939-1940; the Nazis deported approximately 10 to 12 thousand Poles. Another factor that caused population changes in post-war Sosnowiec was migration to Upper Silesia, especially to Katowice. The statistics reveal that over 20 thousand inhabitants of Sosnowiec settled in the Upper-Silesian cities: Katowice, Gliwice, Bytom, Zabrze or Mysłowice.

In the following period, 1946-1950 both cities experienced an increase in population. The population of Bytom grew from 93.2 to 174 thousand inhabitants, which was an increase of 86.7%, whereas the population of Sosnowiec rose by only 14.3%, from 84.3 to 96.4 thousand.

In the case of Bytom, it should be emphasized that the dynamic increase in the number of inhabitants depended on the fact that the index for 1946 presented the population in the medium stage of population exchange (Poles for Germans and German Silesians).

The city's urban space, housing, and economic potential were prepared to inhabit about 150 thousand people within its borders. The index of the visible increase in general was close to the migration inflow.

Sosnowiec experienced a different situation. Low population increase came as the effect of a considerable migration outflow, which was balanced by a high birth rate.

The next period could be characterized by unbalanced development of the migration index in Bytom; the population increased mainly due to the birth rate and administrative changes. The Bytom area expanded and incorporated new, strongly urbanized communes of Łagiewniki, Bobrek-Karb, Chruszczów (Szombierki – since 1986) and Miechowice.

Table 3 shows that the total increase in the case of Bytom reached only 3.8% and in Sosnowiec 29%. The high value for Sosnowiec reflected both the birth rate

as well as the incorporation of new territories. The incorporation took place in 1953. Sosnowiec incorporated a very urbanized and industrialized commune of Niwka, with the settlements of: Dańdówka, Bobrek, Bór and Jęzor compromising the city's southernmost quarters.

If the population index is taken into account, in 1955, Bytom was the second city of the conurbation (table 16 in Annex) and Sosnowiec, the sixth and last, in the group of big cities (with a population exceeding 100 thousand inhabitants).

The next two periods, 1955-1960 and 1960-1965, presented a balanced-out increase. The population of Bytom increased by 10 thousand inhabitants (1955-1965) and the population of Sosnowiec increased by 15 thousand inhabitants. Two factors contributed to the increase, namely the birth rate and migration inflow. It should be noted that the low level of population growth in Bytom in the period of 1955-1960 was conditioned by an important urban problem, that is, by a large urban crisis. The crisis was brought about by reasons of a high index of population density, a poor state of housing resources and also by mining damages.

In the 1950s, a ”*plan of deglomeration of the GOP-region*” (here: the GZM-region) was prepared and later-on developed in the 1960s and 1970s. The mentioned plan of deglomeration was outlined, in a theoretical manner. The directions of activities introduced order and improvement as far as the depopulation of overcrowded, demolished and polluted cities and quarters were concerned. Bytom was the focus of the plan since it was the biggest city that required extensive modifications and re-urbanization.

A new stage of development was seen in the 1970s. It was a time of economic and social redevelopment all over Poland, however, special conditions were provided for in the examined region due to the region's importance in the national economy, and probably the fact that the leader of the communist party, E. Gierek, was born in Sosnowiec, and emotionally attached to the Dąbrowa Basin region (the eastern part of the conurbation, together with Sosnowiec).

The reforms by E. Gierek focused on four aspects of development: administrative, economic, spatial and the one examined here – the demographic one. All were present both in Bytom as well as in Sosnowiec.

Administrative changes were initiated in 1973 and finished in 1975/1977. In the case of Bytom, the first administrative activities started in the neighbouring town of Radzionków, which incorporated the commune of Sucha Góra (1973).

Two years later, the town of Radzionków, with its new borders, and also two urbanized communes of Stolarzowice and Górniki, were incorporated into Bytom.

An analogous model of administrative changes took place in Sosnowiec. At first, the mining town of Kazimierz Górniczy incorporated the urbanized settlements of Maczki and Ostrowy Górnicze and the industrialized town of Porąbka (in 1973). Two years later (in 1975), Sosnowiec incorporated the enlarged Kazimierz Górniczy as well as two other mining towns of Klimontów and Zagórze.

All territorial changes were reflected in population indexes for Bytom and Sosnowiec (tab. 13 in Annex). In Bytom, the population increase in the period 1970-1980 reached about 25%, and it is important that over 20% happened in the years 1973-1978.

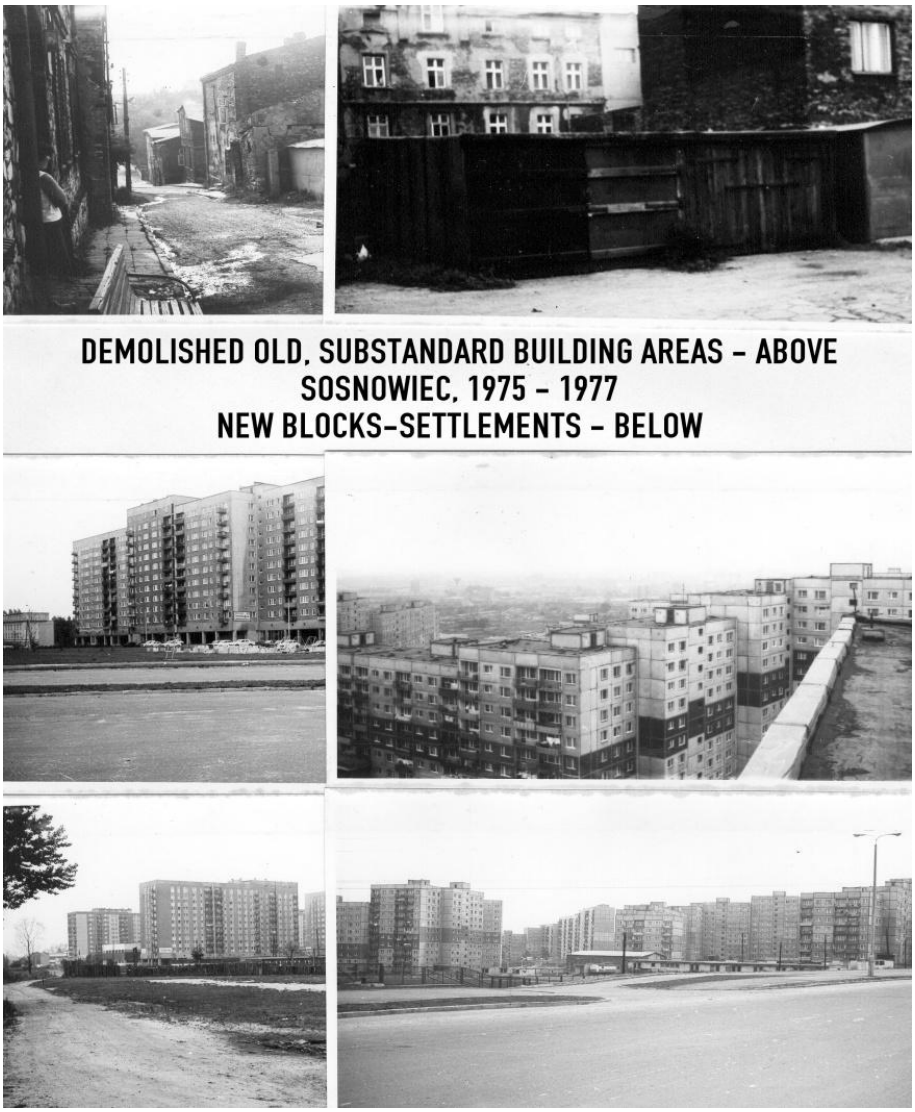
The increase of population in Sosnowiec, in the same period (1970-1980), amounted to about 68.4% and, about 35.5% in the period of 1970-1975. The latter period of increase resulted from the territorial changes described above. From the mid-1970s to the mid-1980s, Sosnowiec was a large "construction site". New block settlements were erected in Środula, Stary Sosnowiec, Pogoń, Sielec and particularly in the so called "block-town" of Zagórze, which was already inhabited by about 40 thousand people in the beginning of the 1980s (figure 10).

Block settlements in Bytom were constructed at the time in the district of Stroszek/Osiedle Gen. J. Ziętka – the northern area of the city. It is a fact that the seventies was a period in the history of Bytom when the dynamics of population increase slowed down. Until the mid-1990s, the population oscillated between 230 and 240 thousand. The highest index was observed in 1987, when the population of Bytom equalled about 239.8 thousand. An interesting phenomena in the case of Bytom, in the context of the Katowice Conurbation, was that the beginning of shrinkage process happened 10 years earlier. The cities within the Katowice Conurbation, such as Bytom, Siemianowice Śl., Sosnowiec and Świętochłowice were the ones where the depopulation process began the earliest. The city of Chorzów was, however, the first to experience depopulation, already in the 1970s.

The five cities mentioned above have belonged to a group of centres with the highest population density, together, with a complex of unfavourable social and economic factors based on this rate. In the following decade, the population index in Bytom reached about 225-230 thousand inhabitants. The temporary fluctuation of indexes that happened around 1988 were most likely linked to the method of population counting, based on the modified population projection of the municipal

department in the previous and following years, while the rate for 1988 came from the *National Census* (*of Population and Dwelling Conditions*). It can be assumed that the oscillating index for Sosnowiec at the same time was based on the same thesis.

Figure 10. Demolished old, substandard buildings and new block-settlements in Sosnowiec, 1975-1977



Source: Department of Economic Geography, University of Silesia, Sosnowiec.

As far as the dynamics of population is concerned, the years 1997 and 2000 appeared to be the worst for Bytom in the last period. In 1997, the population suddenly approximated 200 thousand, and in 2000, this index was exceeded. The

population loss in 1997 was a consequence of the fact that the town of Radzionków separated from Bytom after twenty years. Independent from administrative changes, a considerable population decline happened within the examined cities (figure 11). This unfavourable situation was brought about by both the migration index and the birth rate index.

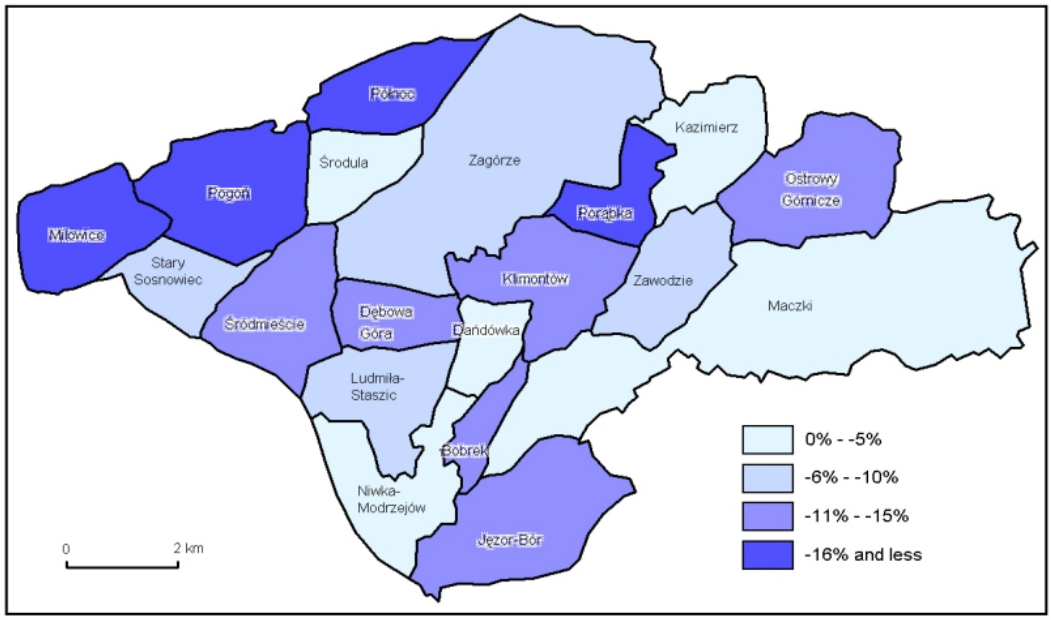
Figure 11. Bytom. Vacancy – housing area in the shrinking city

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

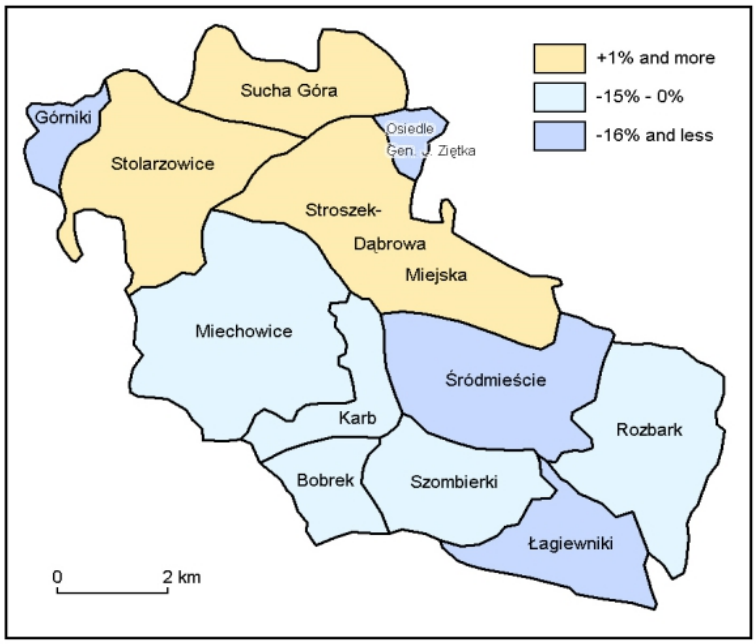
Thereby, Bytom no longer qualified in the group of cities of GZM-region with a population exceeding 200 thousand. The same process was observed in Gliwice and Zabrze. Only two cities of the Conurbation, Katowice and Sosnowiec, have more than 200 thousand inhabitants.

In the case of Sosnowiec, the dynamics of population decrease has been more evolutionary. As was mentioned above, the end of the 1980s marked the start of the period of population shrinkage. At the end of the 1990s, some centrifugal trends were observed in Sosnowiec, too. Their effect was shown in the tendencies to separate Kazimierz Górniczy from Sosnowiec. Finally, the quarter remained in the urban space of Sosnowiec. Both examples of separation trends in Radzionków and Kazimierz Górniczy came as a consequence of the socio-economic crisis of the 1990s, which especially affected big, industrial (post-industrial) cities.

Figure 12. Dynamics of population in Sosnowiec and Bytom by quarters in 1988-2005



DYNAMICS OF POPULATION IN SOSNOWIEC BY QUARTERS IN 1988 - 2005



DYNAMICS OF POPULATION IN BYTOM BY QUARTERS IN 1988 - 2008

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

In 2007, Bytom had a population of 184.8 thousand, while Sosnowiec 222.6 thousand. Every year the cities lose a few thousand inhabitants. The present index for Bytom is the same as it was in the beginning of the 1960s, and for Sosnowiec,

as it was at the end of the 1970s. The decrease of population in 2007, in reference to the year when the population reached its highest level, reveals a 23% depression in Bytom and 14.4% in Sosnowiec (see also figure 12).

The population projection of the Statistical Office in Katowice for the next twenty years (table 17 in Annex) is very interesting, but at the same time, alarming. In the next two decades, the population of Bytom will shrink to the level of 126.1 thousand inhabitants, just as it was at the end of the 1920s! The data for Sosnowiec, with the projected population of 170.3 thousand in 2030, is not any better. The last time a similar index of population was noted in Sosnowiec was in the 1970s, before the incorporation of several mining-towns in the eastern part of the city and construction of big block settlements.

Dynamics

Population changes in the case of the GZM region, as well as the cities of Bytom and Sosnowiec, should be discussed in historical context. Two basics periods should be distinguished, that is the period of considerable increase (the end of the 19th century to the 1980s) and the period of a considerable decrease (the 1980s to the 2000s). Each of these periods may be subdivided, however, the population growth understood as natural increase differed by level in Bytom and in Sosnowiec.

The case of Bytom reveals that in the 1960s and 1970s (and partly also in the 1950s), the city reached the peak of its possibilities as far as its population capacity. High population density steadily maintained the level of population at about 170 to 190 thousand. That created a statistics barrier but it was based on different factors of spatial, demographic and economic nature. The dynamics of population, understood as the natural increase for five-year periods, support these opinions. The index practically fluctuated around zero and no more than 4%, just like in the beginning of the 1970s. It can be reckoned that the city reached a kind of population stabilization.

Nevertheless, the process of stabilization in this situation indicated that in the context of the whole metropolitan region, Bytom constituted a shrinking city. The population rate in Bytom, in the total population of the Katowice Conurbation shrank year by year. In 1955, the city's share was 14%, and in 1970 it was only

11%. The decrease was significant if the fact that Bytom was one of the most important centres of the region is taken into consideration. Another index reflects the demographic distance between the first city of the Conurbation – Katowice and Bytom as the third one; while in 1955 the population of Katowice exceeded the population of Bytom only by 9.5% , in 1970 it was already about 38.5%.

The period mentioned above presented the stage when the described *depopulation crater* started to emerge. Its range comprised of a few cities from the central and northern part of the Conurbation: Bytom, Chorzów, Siemianowice Śląskie, Świętochłowice (partly, from 1955 to 1970, Ruda Śląska).

For a long time Bytom and Chorzów were the symbols of depopulation in the case of the industrial region. The 1970s faced a dramatic population increase but it depended only on territorial incorporation of neighbouring towns.

The nineties (1990-2001), in the case of Bytom, presented the period of a complete demographic depression. The decrease index was about 14.4%. Except for the war-period, it was the highest rate of shrinkage in the modern history of the city. The process resulted from spatial changes (separation of Radzionków), as well as a negative birth rate. The demographic decrease is continued in the third millennium. The last eight years (2001-2008) marked a decline of about 7.7%. It is a very high value if one takes into consideration that the decade has not finished yet and there have been no territorial changes. Unfortunately the population projection reveals a further demographic depression. Its forecast dynamics will reach 32% in the period of 2007-2030.

Despite the fact that Sosnowiec has a similar genesis to Bytom, the trajectory of population growth after World War II, and before, were a little different. The two main periods of population changes – the stage of increase and the stage of decrease- were common. The reasons for that were presented above. Here, only the model of population growth should be highlighted.

The first question focused on is the one of historical periods of considerable increase and decrease in the first half of the twentieth century. It is obvious that the numbers of population growth and depression were typical for war and post-war periods. The similarities between Bytom and Sosnowiec could be noticed especially in those periods.

As was mentioned, after World War II, Bytom reached a kind of population maximum. Sosnowiec presented just the opposite. Each of the statistical five-year periods revealed the possibilities of further demographic development. And, just

like in 1950-1955, the fact depended on territorial annexation (the total growth of 29%). However, the increase in the remaining periods was caused only by the birth rate. The high values of population growth subsided only at the end of the 1960s and in the beginning of the 1970s (3.7% in 1965-1970 and 0.7% in 1970-1972).

The noticeable growth in the 1970s came as a result of territorial changes and the erection of new and extended block settlements in the "old Sosnowiec", as well as in new quarters (Zagórze mainly). The fact of a slow-down in the increase of population until the end of the 1980s is also worth mentioning. The values were not higher than 2% and later 1%. The peak of the demographic increase was reached in 1987 and then the population equalled 259.9 thousand. The population rate of Sosnowiec in relation to the total population in the GZM-region increased from 9.7% in 1955 to 11.2% in 1990.

Another factor, presenting the role of Sosnowiec on the population map of the region, was the reduced demographic distance between Katowice as the biggest city of the Conurbation and Sosnowiec. While in 1960 the population difference equalled about 105%, in 1990 it was only 42%. It should be highlighted that Sosnowiec gained an advantage over other cities of the Katowice Conurbation if the population rate is taken into consideration. The city was in the remote fifth position in relation to the matter in 1955-1960. Since 1980, Sosnowiec has become the second city of the Conurbation, and the third in the current province.

Population decrease in Sosnowiec started a few years later than in Bytom. It can be assumed that it happened in 1987. However, the average annual value of population decrease was at a similar level. In general, it was less than 1%. This trend is continued at present. It is a disadvantage that depopulation will increase in a comparable manner to Bytom. Even though the decrease index in the presented projection is lower than in Bytom, the demographic situation of Sosnowiec is alarming. According to the forecast of the Statistics Office in Katowice, in 2030 only 76.5% of its contemporary population will be living within the borders of the cities.

2. Impacts and consequences of urban shrinkage

2.1. Patterns of segregation and social cohesion

The cities of the Katowice Conurbation had been quite homogeneous socially and economically until the beginning of the 1990s. Since then, new trajectories of social diversification have been initiated. The social and economic transformation has divided the cities of the Katowice Conurbation as well as the population and quarters within their borders.

The main issue, with respect to social division and social exclusion, is the question of unemployment, and its types. This negative phenomenon, in the case of the studied Conurbation, also referred to as the region of traditional industry, has marked itself dramatically. It would not be exaggerated to state that the Katowice Conurbation has been condemned to having problems with unemployment (see figure 13).

The discussed issue emerged in the region as early as in the beginning of the 1990s (table 5). The example of Bytom presented there, shows the progress in the unemployment index. The unemployment index in bigger cities of the GZM in 1995, approximated 10%. After a short period of unemployment decrease in the second half of the 1990s, a new wave of unemployment came in the beginning of the 2000s (tables 34, 35 in Annex). Unfortunately, it was equally dramatic as the first one. Both waves of unemployment superimposed and created a catastrophe. Both Bytom and Sosnowiec are classified in the group of cities where unemployment took its toll.

Bytom ranked third in the region, as far as unemployment was concerned (27.1% in 2003), and first among cities with population of 100 thousand or more.

In the case of Sosnowiec, the unemployment rate was lower, but the problem consisted of a higher concentration of unemployed in one commune, that was 22 thousand of its adult inhabitants.

The primary issue was how to address the problem, and there were two ways of approaching the unfavourable phenomenon. The first one was to create new

places of work and generally new economic enterprises. The other solution came in the form of temporary unemployment benefits.

Table 5. The beginning of the unemployment process in Bytom

Year	Registered unemployment rate (%)
1991	2.4
1992	4.4
1993	8.7
1994	11.4
1995	10.3
1996	11.1

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

As far as the first solution was concerned, the primary function was served by new investments located in Sosnowiec, as a part of the Special Katowice Economic Zone. The inflow of new work places was quite visible, but happened only in Sosnowiec. Unfortunately, Bytom did not belong to the SKEZ structure and therefore compensation of new work places there was at a low level (see the proportions of long-term unemployment in table 6 and table 7 below).

Table 6. Proportion of long-term unemployment in Bytom and Sosnowiec, 2000-2007

Bytom			Sosnowiec		
Registered unemployed persons		Registered unemployment rate	Registered unemployed persons		Registered unemployment rate
Total (in thousands)	Long-term (% of total)		Total (in thousands)	Long-term (% of total)	
2000					
13.4	41.7	18.2	14.9	41.0	17.0
2007					
8.9	43.4	15.9	9.9	37.3	12.0
DYNAMICS 2000-2007					
-4.5	+1.7	-2.3	-5.0	-3.7	-5.0

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistics Office in Katowice.

In both cities, and also all over Poland, a system of unemployment benefits was created, also including special benefits, such as rent subsidies.

Table 7. Basic data on registered unemployed persons in 2007

Specification	Registered unemployed persons					Registered unemployment rate in %	Newly registered unemployed persons	Persons removed from unemployment rolls	Job offers	
	Total	Of total							During the year	As of 31 XII 2007
		Women	Previously not employed	Terminated for company reasons	Possessing benefit rights					
Bytom	**8935**	**5661**	**1865**	**99**	**1019**	**15.9**	**13739**	**17145**	**3024**	**154**
Chorzów	5190	3128	1015	104	596	12.6	9440	12196	972	49
Dąbrowa Górn.	6906	4202	1918	128	734	11.6	10727	13014	1056	1059
Gliwice	5933	3764	1819	466	521	6.2	9412	12164	9024	780
Jaworzno	3968	2682	893	328	329	13.0	6481	7283	1368	57
Katowice	6826	3967	1057	151	734	3.3	15096	19080	7272	373
Mysłowice	2700	1777	623	224	239	9.1	4836	5751	1524	278
Piekary Śl.	2645	1611	759	143	208	14.5	4289	4874	6840	1555
Ruda Śl.	3196	2105	721	48	367	6.8	8818	10737	2112	335
Siemianowice	2789	1683	561	84	581	13.6	8079	9251	2436	215
Sosnowiec	**9854**	**5876**	**3774**	**517**	**1215**	**12.0**	**18358**	**21671**	**4128**	**894**
Świętochłowice	1743	1072	309	22	308	12.8	4521	5840	6960	405
Tychy	3091	1954	526	127	468	5.2	6946	8822	4764	1293
Zabrze	7897	5301	1664	782	877	13.0	11278	15120	8196	609

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

Activities directed at specialized professional groups were a very important element of the aid programme, especially in the case of miners and steelworkers. The most crucial, though, were the special restructuring programmes in the mining sector, and professional elicitation for miners who had lost their jobs. The fundamental assumptions of the programmes were: early retirement, translocation of miners from the closed down coal mines to others and the most controversial question of a one-time golden handshake in the amount of even 15 to 20 thousand Euro. Another programme focused on granting special funds for miners who started new business activities. Its effects though, were not impressive.

The problem of unemployment was also solved by emigration. In the western and central part of the region (e.g. Bytom) people emigrated to Germany and the Netherlands, while in the eastern part (e.g. Sosnowiec) to Great Britain and Ireland. There are no credible statistics to refer to specific numbers of emigrants. Some researchers believe that the number of emigrants from Sosnowiec to the British Isles exceeded 5000 people and another 2 to 3 thousand emigrated to developing Polish agglomerations such as Warsaw, Kraków or Wrocław.

Figure 13. Demolished clothing plant „Wanda" and new block-settlement „Andersa-Tabelna" in Sosnowiec

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

A very popular trend among the dismissed workers who resided in factory hostels was to return to their birthplace or a place of growing up (especially to rural areas).

The problem of unemployment is clearly visible in the aspect of territorial structure of the cities (figure 14). Sosnowiec presents a good example. The first issue is the fact of high unemployment in the quarters that had faced social problems even before the transformation of the beginning of the 1990s. The problems may be defined as alcoholism, so called disguised unemployment, a high percentage of the population with only primary education, and substandard housing conditions. In the 1990s, those places were complemented by the quarters inhabited by employees of closed down factories.

In the case of Sosnowiec, the quarters of Północ, Bobrek, Ludmiła-Staszic (socialist-time traditions) or Kazimierz Górniczy, Porąbka, and Zawodzie registered the highest level of unemployment. The lowest indexes were observed in Klimontów, Dębowa Góra, Śródmieście, Zagórze, and Niwka-Modrzejów. It should also be noted that in the quarters providing a sufficient number of work

places, and with a prevalence of single-family houses, the unemployment rate is relatively the lowest.

Some quarters, with a domination of the so-called mining settlement, presents an interesting exception (Klimontów, Niwka-Modrzejów, partly Zagórze), as districts with a low unemployment rate and simultaneously with a low employment index!

Particularly dramatic was the unemployment of young people. A solution was to become educated, therefore acquiring additional time to find employment and improve one's position on the job market.

In the case of Sosnowiec and also other cities of the region, some programmes aimed at the question of social cohesion for the quarters that are in the least favourable situation function there.

Figure 14. "Bobrek" Steelworks in Bytom. A core of quarter of social problems

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

2.2. Business and employment

The process of depopulation in the Katowice Conurbation was conditioned by the severe economic crises of the 1990s and 2000s. As mentioned above, in the 1990s, both cities and also almost the whole Conurbation experienced a slump in its economic base and a lot of industrial plants were closed down. The restructuring process affected the services as well. Thousands of people lost their jobs in the Polish "employment *eldorado*."

It might come as a shock for Silesians today that in Świętochłowice, the number of employed in agriculture is the same as the number of employed in coal mining And it is beyond imagination that in Chorzów, three times as many people are employed in agriculture as in coal mining (figure 15). It is surprising that in the townscape of the eastern part of the Conurbation, in the Zagłębie Dąbrowskie, currently only one coal mine is working, whereas 15 years ago, there were as many as 8.

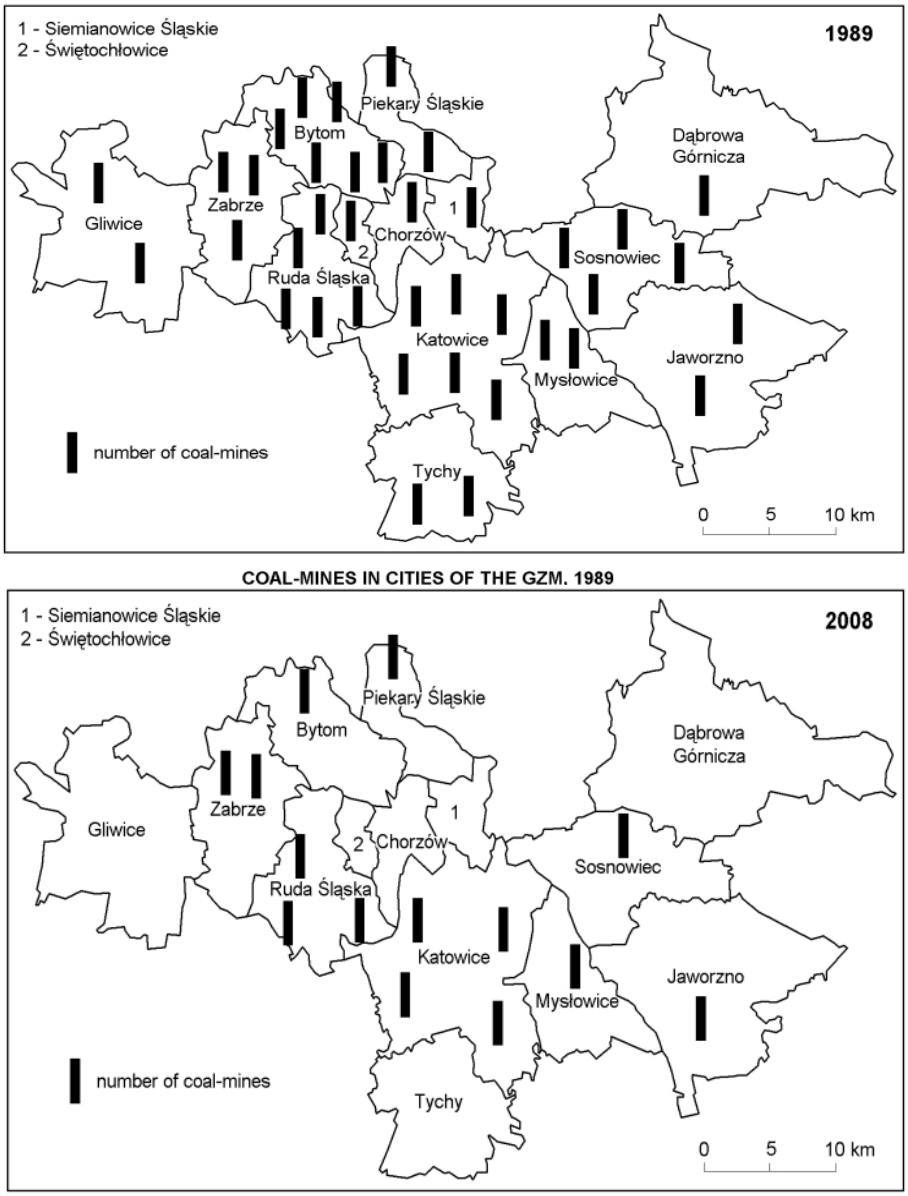
Until the mid-1990's both cities – Bytom and Sosnowiec– were economically conditioned by the development of mining and metallurgy. Their regress brought about a number of dramatic phenomena. In both cities, the negative consequences of the collapse of the previous economic structure took place on different dynamic levels.

The first and absolutely foreign effect of restructuring was the phenomenon of unemployment. Tables 34 and 35 in the Annex, and table 7 present the increase of unemployment in the cities of the region and in particular, quarters of both examined cities. In the case of the latter, the attention is brought to the inversely proportional employment rate, in reference to the unemployment rate. As far as the unemployment rate was concerned, the post-industrial, working class districts with social problems were in the worst situation. They are the ones in which the phenomenon of shrinkage is the most noticeable. The dynamics of the unemployment rate, in the case of Bytom, that took place in the first phase of the problematic period is presented in table 5.

A high unemployment index generated other unfavourable social and economic problems and also negative opinions regarding the possibilities of stability and development in the future. Table 52 shows the size of the destruction of the former economic base in Sosnowiec. Almost the whole industrial sector

collapsed and new investments only partially fulfilled the empty space on the local job market.

Figure 15. Decrease of coal-mining in the GZM cities, 1989-2008



Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

There were several ways of approaching new problems. In Bytom, the old and traditional industries were sustained while in Sosnowiec, new industries within

the Katowice Special Economic Zone (the KSEZ) appeared. The city authorities in Sosnowiec proved to be very creative.

The polices of the city authorities in Sosnowiec, towards the new model of economic development have been based on the following:

- wide promotion and advertising of the investment areas,
- the building of necessary technical and transportation infrastructure – investment costs being covered from municipal means and European Union programmes,
- initial recultivation of brownfields that consisted in levelling piles and larger cavities of land,
- granting each important investor "a supervisor" – a particular person employed in the City Hall, who helps with organization, legal, economic and other matters, especially when dealing with foreign investments,
- attracting investments in industry, as well as services,
- friendly attitude towards medium and small investments.

The majority of new investments were located in brownfields areas, which makes Sosnowiec differ significantly from other large, new, industrial plant conglomerations of the Katowice Conurbation. In the remaining ones, the dominant model of development is the one of the greenfields areas.

In Sosnowiec, the conglomerations are located in the so-called areas of The KSEZ: "Dańdówka", "Mikołajczyka", "Milowice", "Narutowicza", "Zaruskiego", and also in the two different conglomerations in the Zagórze district.

New investments alleviated the negative effects of industry restructuring and created a new path for the future. It should also be noticed that factories located within the KSEZ started to attract new companies in the vicinity of the zone (Haerus Electronite, Magneti Marelli, CEBI Poland).

Unfortunately, in Bytom, the situation was far less promising. New and bigger investments took place well away from the city. This was due to the municipal and regional politics and also to mining damages, but above all, due to the fact that the city was excluded from the special investment zones of the KSEZ. However, new economic enterprises, mainly small business, appeared in Bytom as well.

The differences between Bytom and Sosnowiec in the inflow of new economic enterprises are reflected in the number of employees. At the end of the first decade of the 21st century, the decrease in the number of employees presented

a higher level in Sosnowiec (from 68.2 thousand in 1995 to 52.0 thousand in 2008) than in neighboring Bytom (from 70.1 thousand in 1995 to 32.7 thousand in 2008).

Table 8. Employment and unemployment rate by quarters in Bytom and Sosnowiec in 2002

Quarters	Employment rate [%]	Unemployment rate [%]
Bytom		
Sucha Góra	38.1	22.9
Górniki	34.4	24.3
Stolarzowice	39.6	20.8
Stroszek-Os. Gen. J. Ziętka	39.6	23.1
Miechowice	42.4	22.6
Karb	34.3	30.7
Bobrek	26.6	49.3
Śródmiescie	35.8	28.2
Rozbark	33.3	31.1
Szombierki	38.3	23.9
Łagiewniki	36.7	26.3
Sosnowiec		
Milowice	36.3	25.0
Pogoń	37.8	25.3
Północ	35.1	28.5
Sielec-Środula	37.3	22.9
Zagórze	44.6	23.6
Stary Sosnowiec	44.5	21.2
Środula	50.1	24.7
Klimontów-Dańdówka	35.7	22.1
Kazimierz Górniczy	33.1	25.3
Ostrowy Górnicze	37.1	21.7
Porąbka	25.9	26.6
Maczki	39.6	24.8
Niwka	39.0	24.2

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

High expectations in Bytom are connected with the upcoming crucial transportation investments that may have a positive influence on the location of industry and services. The construction of the A1 motorway, from the Czech Republic to Gdańsk, is at an advanced stage (scheduled to finish at the end of 2011/beginning of 2012); the construction of a special rapid transit rail: Katowice – Bytom – Pyrzowice Airport is to begin in the nearest future (probably in 2011).

Another effect of the described phenomenon was the change in city functions. The industrial and industrial-service model of urban functions that had been characteristic in the 1970s and 1980s, was replaced by a services and service-industrial model in the 1990s and 2000s (see tables: 43, 44, 45, 46, 47 and 48). The decrease in workplaces in the industrial sector was balanced by new places of work in trade (new shopping centres), market services and private transportation.

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Nevertheless, the inflow of new investments and development of services did not balance the problem of unemployment or other problems such as low salaries. Low salaries are characteristic for both industry and services in Bytom, as well as in Sosnowiec, but also in other cities of the Conurbation (tables 41 and 42). Typical salaries, after deductions, amount to 1000-1500 PLN (250-370 Euro). Paradoxically, the highest salaries are in the sector of traditional industries, such as

coal mining, metallurgy or energy. Limited salaries bring consequences in the form of low buying power.

On the other hand though, low remuneration, next to the above mentioned politics of the city authorities, and tax breaks in special economic zones, is of high importance for locating new investments, especially the industrial ones.

Bytom and Sosnowiec clearly differ on the job market as far as commuting is concerned. In spite of the geographical proximity of Sosnowiec to the biggest job market of the centre – Katowice, not less than 30 thousand (estimate) people living in Sosnowiec work in Katowice. Of course, many Bytom inhabitants found employment in Katowice, but the number of commuters is lower – about 5-10 thousand (estimate).

2.3. Social structure and education

The first problem encountered in the studies of shrinking cities is the question of social conditioning and the social consequences of the process. The question is which phenomenon came first? In the case of the Katowice Conurbation, the answer is between the problems of the economic transformation of the 1990s, on one hand, and some demographic processes lasting since the 1970s.

It is a fact that all of the cities of the region experienced a dramatic demographic inflow in the 1970s and part of the 1980s. Population was also excessively dependent on the local economic potential. Several hundred thousand people lived in a simple system: place of work in traditional industry – place of residence in a new block settlement.

Trajectories of population growth have been presented at a different point in the dissertation but it should be restated that a considerable demographic growth strongly channelled the character of social structures.

Table 32 shows that the dynamic inflow of twenty- and thirty-year-olds in the 1970s, have transformed into today's socio-economic groups of retirement age elderly.

The birth-rate increase in the 1970s and 1980s lead to the fact that the birth-rate index was, in most cities, at its highest level. Unfortunately, this positive phenomenon has a negative effect on present times; now these groups of young people are affected by unemployment.

The economic depression of 1990s, as well as the second demographic transition, changed many typical elements of social structure. The first change referred to the family model: the popular model of the 1980s *2 plus 2* has been replaced by *2 + 1* or *2 + 0*. Another fact is that women get pregnant for the first time about 5-7 years later than before, that is at the age of 27 to 29.

On the other hand, this issue has resulted in an increase of the part of the population with higher education diplomas. The most popular path of life has become the one of primary school, secondary school, university or college, a few years of "free living" and finally starting a family. However, every year the number of cohabiting couples, as well as singles, is growing. The data reflecting the growth in the number of singles in the cities researched, between 1988 and 2002, is startling and spectacular (see table 9).

Table 9. Share of singles (aged 20-39) and one-person households in Bytom and in Sosnowiec, 1988-2002

Cities	**Bytom**		**Sosnowiec**	
Years	**1988**	**2002**	**1988**	**2002**
A) Number of population in matrimony aged 20-39	54111	28830	66119	35584
B) Number of singles aged 20-39	17570	20636	18722	28087
Share of singles A/B (in %)	32.5	72.0	28.0	79.0
Number of one-person households (economically active population only)	8567	8324	8120	8324
Total number of households (economically active population only)	63693	43419	71551	28325
Share of one-person households (economically active population only) in total	13.4	19.2	11.3	29.4

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistics Office in Katowice.

The increase of number of children in single-parent families is also visible. For instance, more than 15.5 thousand (24.2%) children lived in such families in Bytom and more than 17.5 thousand (24.1%) in Sosnowiec (2002).

This situation presents a novelty for the traditional society of the Upper Silesia (Bytom) where tradition, religion and conservative views have always been powerful.

The problems of economic groups of population, as well as the dependency rate in Bytom and in Sosnowiec are shown in table 32. Conclusions are not optimistic. The presented structures are partly based on the population projection. Of course, the dependency rate for 2007 was lower than in 2001, but if you take into consideration its structure, it was not quite positive – namely, the relations between the youth dependency rate and the old-age dependency rate. A clearly visible share of a young population was the assumption of further demographic development. The contemporary structure and economic limitations in both described cities mean that the projection is not optimistic (figure 16).

The problem of population ageing in the analyzed cities, and the whole Silesian Province will become one of the most serious social issues in the nearest future. By 2035, over 28% of the Silesian Province population will have reached the retirement age. The estimates for Bytom and Sosnowiec reveal a higher number. In both cities, the number of the population over 50, that is not active professionally, is considerably increasing.

Figure 16. Sosnowiec, district of Środula. "Shrinking" blocks from the 70s and the 80s

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

The ageing of the population in the cities of the so-called traditional industries and monofunctional social structures, is not a beneficial phenomenon. It is due to the fact that even though elder people have free time, they are closed in their communities and are hardly visible on the city forum, have lower ambitions and, above all, lower economic means. The growing participation of elder people in

the demographic structure of both cities presently causes, and will cause in the future, a decrease in social engagement, and partly in cultural engagement as well.

The share of young people as the future of local society is characterized in table 9. It can be observed that the number of schools, as well as kindergartens, has been in decrease since the end of the 1980s. The case of Bytom is representative for the problem of shrinking cities of the Katowice Conurbation. The most alarming, however, is the decreased number of pupils, especially in primary schools, in the period of 2001 to 2007 – about 26% in Bytom and about 28% in Sosnowiec (table 33 in Annex).

The number of primary school students in Bytom, as well as Sosnowiec, is presently on par with the number in the 1970's. It is analogous in the case of kindergartens. A positive element is that the number of schools and kindergartens has increased since then. On the other hand, it should be taken into consideration that the costs of school maintenance covered by local governments have increased.

The investment problems in kindergartens are reflected in the relationship between the number of places in kindergartens, and the number of kindergarteners. In 2008 in Sosnowiec, there were 4,678 places for 5,191 children, 513 places short. In 2009 the problem will be even bigger. Even though the city authorities have increased the number of places in kindergartens, it is estimated that the increase is temporary and, in the future, it is expected that the interests in kindergartens will decrease.

One element, of the elements studied in reference to social infrastructure, is at quite a good level, and it is the number of hospital beds and the number of doctors per 10,000 inhabitants. It should be emphasised, however, with every year, the health service is more and more burdened by groups of older people and it may be assumed that the tendency will increase. Private healthcare providers are only a temporary solution to the problem (table 33 in Annex).

2.4. Technical Infrastructure

In the process of city shrinkage it is important to examine the conditions of their technical infrastructure. Ultimately, fewer and fewer inhabitants use the usually developing urban infrastructure. This presents a very convenient situation for city dwellers, but the maintenance of infrastructure creates a financial burden

for a municipal budget. Some budgets are not under the influence of municipal budgets and recently have become quite profitable (gas, electricity).

However, a lower number of inhabitants results in a constant increase in the gas, electricity or water fees. The changes of infrastructure and its structure are presented in table 10. On the other hand, the increase in energy usage and modernization of the infrastructure connected with it, is quite noticeable. In the case of urban areas, the second issue poses an economic challenge.

It should be mentioned here that one of the largest projects of building a sewage system is to be developed by building the Bobrek sewerage collector in the southern and eastern part of Sosnowiec. This investment should be helpful in dealing with all the sewage problems in Sosnowiec, and also in the western quarters of the neighbouring cities of Katowice and Mysłowice.

The most important problem of the examined cities is their public transport and transportation network. Even though the index for the transport network density is high, the primary difficulty lies in the obsolete network and old vehicles.

The bus transportation system is run by KZK GOP and also by smaller transportation companies. The system is not coherent, especially when the system of regional rail is taken into account. In both examined cities, the public transportation system is based mainly on buses and trams. The length of both types of transport is presented in table 11.

Table 10. Supply structure in Bytom and in Sosnowiec, 1988-2007

YEAR	BYTOM				SOSNOWIEC			
	Gas-line	**Water-line**	**Sewerage**	**Electricity**	**Gas-line**	**Water-line**	**Sewerage**	**Electricity**
1988	180.0km -	304 km 149 m³/c.	209.9 km -	662.6 kWh per capita	192.8 km -	389.8 km 152,5 m³/c.	243.7 km -	521 kWh per capita
1996	314.8km 215.8 m³/c.	337,7 79.4 m³/c.	226.3km -	534.3 kWh per capita	318,1km 263.1 m³/c.	436.9 59.7 m³/c.	292.3km -	571.0 kWh per capita
2001	281.5 km 84.1 m³/c.	311.3 km 51.8 m³/c.	220.4 km -	-	379.7 km 93,3m³/c	430.8 km 41.3 m³/c.	297.2 km -	-
2007	286.4 km 90 m³/c.	310.8 km 31 m³/c.	236.5 km -	1755.2 kWh per capita	385.2 km 89 m³/c.	432.6 km 37 m³/c.	295.7 km -	1684 kWh per capita

Explanation: * - th. t : thousand ton; c. - capita.

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistics Office in Katowice.

The first issue to be commented on is the one of a shrinking public transport system. The statistics show the number of bus connections and trams falling by

only a few percent. The trend to use private cars has resulted in a slump in the number of passengers (approximately by 30%). The fact is that the passengers mainly consist of the elderly and students. They enjoy special discounts therefore, increasing the demand for transport subsidies. It is astonishing that there exists only one transportation line in the Katowice Conurbation that brings profits, namely bus line no. 912 in Katowice.

The low number of passengers as well as low income index for this kind of economic activity have recently lead to the liquidation of bus and tram routes. This process is very visible in the case of Bytom, where some tram routes (no. 8, no. 31, no. 32, no. 33 and no. 34) have been closed in the last two decades. Route no. 27, in Sosnowiec is to be shortened, while route no. 15, to the eastern part of Zagórze, is to be extended to the biggest residential quarter in Sosnowiec.

Table 11. Length of public transport systems in Bytom and in Sosnowiec, 2008/2009

Type of transport	Bytom	Sosnowiec
Length of roads with bus-transportation (km)	93	170
Length of tram network (km)	98	46

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

Another issue is the bad condition of the regional rail system as an important means of metropolitan transport. A lot of popular train routes have been liquidated and this has intensified the problems of interurban accessibility. The role of the railway decreased especially in Bytom, which is located outside the main rail route of the Conurbation: Dąbrowa Górnicza – Sosnowiec – Katowice – Chorzów – Ruda Śląska – Zabrze – Gliwice.

It is important to note that there are no problems with rebuilding the technical infrastructure connected with supply activities neither in Bytom nor in Sosnowiec. Municipal authorities view the enlargement of technical infrastructure as an essential element of urban development. The case of the KSEZ's investment areas in Sosnowiec, where the city finances the whole technical infrastructure and local roads to improve conditions for investors to make their location decisions (last investments by the Narutowicza, the Mikołajczyka and the Dańdówka Complexes of the Katowice Special Economic Zone), presents a good example (figure 17).

The most serious problem in the case of technical infrastructure is a high index of expenditures caused by mining damages. Compensation for damages are only part of the actual costs of harmful mining activities.

Figure 17. Sosnowiec. Private investments, municipal roads and technical infrastructure

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

2.5. Land Use and Environmental Quality

The Katowice region is one of the most degraded industrial areas in the Central-Eastern Europe. This issue concerns problems such as land use, emission of particulates and gases, and waste water and wasteland.

It should be noticed that the restructuring of industry and coal mining (limitation of production, liquidation of industrial plants, reduction of pollution) caused an improvement in environmental conditions (see table 12). It is quite noticeable in the case of particulates emissions and heavy metal pollution. The situation in Bytom and Sosnowiec is similar to other big cities in Poland in respect to this matter. However, there are some exceptions – one of them is the problem of coal mining damages (soil settlement) in Bytom and the eastern part of Sosnowiec,

or the issue of wastelands (due to coal mining and industry) and brownfields (see table 13).

Table 12. Emission of air pollutants and generated waste-land

YEAR	BYTOM				SOSNOWIEC			
	Particulates	**Gases**	**SO_2**	**Wastelands**	**Particulates**	**Gases**	**SO_2**	**Wastelands**
1988	18.4 t/km²	62.6 t/km²	10.1 t/km²	19999 th. t*	2.3 t/km²	7.9 t/km²	28 t/km²	1008 th. t
1996	31.8 t/km²	120 t/km²	6 t/km²	52815 th. t	0.7 t/km²	2.1 t/km²	0.1 t/km²	269.4 th. t
2001	12.5 t/km²	135 t/km²	-	461.4 th. t	0.7 t/km²	16.0 t/km²	-	27.8 th. t
2007	7.8 t/km²	60 t/km²	36.8 t/km²	408.7 th. t	1.5 t/km²	12.1 t/km²	5.0 t/km²	122.3 th. t

Explanation: * – th. t : thousands ton.

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

All of these elements create a negative image and, therefore, a negative impression on the potential migrants, as well as investors, especially those with foreign capital. However, the specificity of new investments in Sosnowiec reveals that they are located mainly in the brownfields. Nevertheless, all the industrial plants are located in areas with low rates of soil settlement. The worst situation, in reference to the problem, is present in Bytom. It is a result of earthquakes and sinking ground, too. The rates of soil settlement in Bytom amount from 4-7 m in its central quarters to 16 m in its western quarters.

Bytom's quarter of Bobrek, in the 1990s, was a symbol of a total ecological disaster, similar to Szopienice, in Katowice, and the eastern part of Zabrze. The degradation was environmental as well as social and spatial. Social and spatial problems have prevailed until present times. Present is the gradual process of vegetation on brownfields in the former industrial areas.

Table 13. Degraded lands in Bytom and in Sosnowiec, 1996 and 2001

YEAR	BYTOM		SOSNOWIEC	
	Degraded lands (ha)	**Rehabilitated lands (ha)**	**Degraded lands (ha)**	**Rehabilitated lands (ha)**
1996	383.2	2.4	551.3	33.3
2001	223.8	22.4	477	4.1

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga by Statistical Office in Katowice.

Another issue is created by areas with high noise pollution. Both investigated cities have not yet created special “noise maps”. They should be completed in the next 2-3 years. But, it is obvious that the highest rate of noise pollution is observed along main roads and also in proximity of big industrial plants. The situation presents a novelty in comparison to the 1980s. Car traffic has increased ten fold, whereas the industrial production has decreased several times.

The worst situation, as far as the matter is concerned, is in Sosnowiec (the northern parts of Pogoń, Środula, Stary Sosnowiec, Zagórze; the eastern part of Zagórze, Klimontów, Niwka and Dańdówka; the southern part of Niwka and the central part of Sielec). On the other hand, the centre of Sosnowiec is experiencing very inconvenient, heavy traffic. So far, only the noise of tram lines in the centre of the city has been eliminated. Pollution noise generated by industry is noticed in Dańdówka or Dębowa Góra.

The noise pollution norms have been exceeded in Bytom, too. The worst situation is present in the city's central quarters (Śródmieście, Rozbark, Karb) where local and regional traffic has been concentrated. It is expected that in the nearest future there is going to be another problem of noise pollution in Bytom, connected with motorway no. 1, which is under construction now. The motorway will run along the northern parts of Bytom. At present, Stolarzowice quarter’s inhabitants are protesting against the noise and pollution caused by the construction.

Another crucial problem of both cities is the revitalization of degraded areas. There are two types of activities in this field. The first concept is the forestation and the second is the preparation of the areas to be used for industry or services (see figure 18).

In the analyzed cities of Bytom and Sosnowiec, the problem of brownfields should be investigated from the point of view of their management. The method of management shall be understood both from the point of view of quantity and quality. In the first case, the point of interest consists of the percentage of area that has been reclaimed or brought back into the economy or settlement.

In the second case, the key issue is to answer the question of which direction the changes are leading to, that is, what kind of land use dominates on the former brownfields. Another important issue is whether the changes come as a result of human activity (settlement, new industrial areas, services, technical infrastructure)

or do they appear as a result of natural activity (succession of plants, creation of lakes).

In the case of Bytom and Sosnowiec, there exist two different models of changes in brownfields, beginning from the unlimited succession of plants and ending at the majority of human participation which results, for example, in new industrial areas.

Examples of brownfields in Bytom

The Post-Mining Area of the Former Coal Mine "Szombierki"

This area is found in the southern part of the city, on the border with Ruda Śląska and Świętochłowice. It takes up approximately 3 km² connected with the mining activity of the former coal mine "Szombierki." At the moment, the region is dominated by wasteland, with a noticeable partial succession of plants. Nearby, there are water basins and the Bytomka river. Presently, the area is privately-owned and in the plans for the nearest future, the area is to be developed into one of the largest entertainment, recreation and housing complexes in the northern part of the Katowice Conurbation. The main element of the complex is to consist of a modern golf course located in its southern part. In the northern part, the modernized and historical shaft named "Krystyna", is to host an entertainment and recreation centre with a complex of modern high-rise housing in its proximity. The area is already equipped with plans and concepts for development. In the future it will be one of the most interesting examples of revitalization of the post mining areas in the Katowice Conurbation.

The Post-Mining Area of the Former Zinc and Lead Ore Mine "Nowy Dwór"

This zone covers an area of approximately 1.5 km² and is located in the north-eastern part of the city, on the border with Radzionków and Piekary Śląskie. The landscape is dominated by hills and low points connected with mining activity and the natural lay of the land. With reference to mining, in the past, about 20 shafts and mining probes of various types were in operation here. Subsidence basins in the southern and western parts are filled with water, creating small water basins. An area in the southern part was transferred into gardening plots. The landscape in this area was additionally destroyed due to the action of rock mining in connection with a highway no. 1 from the Czech Republic to Gdańsk via Lodz, being built in the area. In 2008-2009 the northern bypass of Bytom, consisting of

a part of the E 40 road, was built here. The management of this area is subject to transportation and services investments.

The Post-Mining Area of the Former Zinc and Lead Ore Mine "Orzeł Bialy"

It covers an area of approximately 12 ha (within the borders of Bytom) and is located in the eastern part of the city, on the border with Piekary Śląskie. This area embraces the buildings of the former zinc and lead mine "Orzeł Bialy" (western part) as well as exploration areas and piles (eastern part) connected with the former mine. In the eastern part, in an area of about 2 ha the succession of plants is noticeable. In the western part, the Bytom Industrial Park was created on the basis of former mine buildings (partly historical) and it consists of small and medium companies from various fields. The Bytom Industrial Park covers the area of 4.6 ha, 25% of which consists of production and sales halls. It is the main area attracting new economic investments in the sphere of small business in the city. The revitalization of this area is developing in two directions – a location for new companies in the western part and the reclamation of the land, especially piles, in the eastern part.

The Post-Mining and Post-Industrial "Żabie Doły"

This area is located within the borders of three cities: Bytom, Chorzów and Piekary Śląskie. It covers an area of 2.2 km², including 0.45 km² within Bytom itself. "Żabie Doly" was created as a result of the mining and steelworks activity of the "Orzeł Bialy" plant in the 19th and 20th centuries. The effects of the mining and steelworks activities were piles, subsidence basins and excavations. Most of the subsidence basins have been filled with water, creating a specific lakeland landscape. Within Bytom, there are 6 lakes and 2 more in the surrounding area. The forestation of the area, due to a large proportion of lakes, equals only 18%. The remaining areas are meadows and other green areas. Considering the fact that many rare and protected species of plants and animals exist here, the area, since 1997, has been protected as the "Żabie Doły" Nature and Landscape Complex. In the area of "Żabie Doły", one may find, among others, 251 species of vascular plants, 129 species of birds and dozens of species of mammals.

The protected area of "Żabie Doły" is one of the most characteristic and typical, former brownfields areas, in the Katowice Conurbation, which, after the second half of the 20th century has been transformed into a green area.

It is a protected area and human activity here consists of limited control over the further succession of the natural environment.

Figure 18. Different kinds of brownfields rehabilitation:

a) "Expo-Silesia" exposition fair in Sosnowiec, b) protected green areas "Żabie Doły" in Bytom,

c) brownfields and abandoned block in Bytom, d) new municipal cemetery in Sosnowiec-Niwka

Source: R. Krzysztofik, I. Kantor-Pietraga, J. Runge.

The Post-Mining Area in the Western Part of the Karb District

This area is found in the south-western part of Bytom, on the border with Zabrze and Ruda Śląska. It covers an area of about 1.2 km², 20% of which is taken up by forests dating back to various periods of the 20th century. They were partially created as a planned human activity, and partially as an effect of the succession of plants. In this area, about 80 shafts of various types were located. The effect of mining activity is visible in the various forms of the landscape. The subsidence basins have been filled with several water basins. In the area of the shopping centre, one may notice characteristic piles. In 2000, in the south-western part of the area, on wasteland, and near the E40 road, a shopping centre called "Plejada" was established, covering an area of 340 ha. From 2010, there is also a bus stop, named "Bytom" operating for international transportation routes. The management of the area consists of maintaining the green areas and locating small business enterprises

in the surroundings of the shopping centre (a petrol station, a bus stop for international transportation routes).

Examples of brownfields in Sosnowiec

The Post-Mining Area of "Niwka (the Bobrek-Pawiak Region)"

This area of brownfields is located in the Niwka district of Sosnowiec. It covers an area of 2.5 km². The described region is the area of former surface and sub-surface coal mining (the 19th century and the first half of the 20th century). This area is in 80% covered by the succession of plants. Here, many post-mining forms can be found, such as: subsidence basins, land setting areas, small piles, traces of former train tracks.

The area is presently treated as a forest and partially as a park and recreation area. A sports and recreation complex is found on Wojska Polskiego Street. The area of piles in the central-western section was, in 2000, transfered into a cemetery. In the south-western part, on the designated investment area of the KSEZ, an industrial plant of the Magnetti Marelli concern was built. At present, one of the largest factories of "Watt" solar panels is being erected on the plot, covering 4.5 ha, and the production hall will take up 2.5 ha of land.

The Post- Mining Area of "Milowice"

This area of 26 ha is located in the north-western part of Sosnowiec, on the border with Katowice and Czeladź, and the majority of it is part of The Sosnowiec Subzone of The KSEZ. This region presents a successful example of revitalization of the post-mining areas, due to the location of new industrial enterprises here (Duda-Silesia, Polskapresse, Gimplast, Hoermann Polska). The described area is the area of the former coal mine "Saturn", closed down in the 1990's. The post-mining buildings were demolished and the recultivated areas have been one of the best investment zones, with complete technical infrastructure. One exception is a relatively small area of the former post-mine pile in the northern part of the described area. An important aspect was that the area is in close proximity to Katowice, which had an influence on, among others, the location of the publishing house and the printing house of Polskapresse that publishes the second largest, in circulation and importance, daily in the Silesian Province: "Polska Dziennik Zachodni". The area of former post-mining brownfields, in this case, was a transient stage between the mining industry and modern services.

The Post-Mining Area of the Former Coal Mine of "Sosnowiec"

This area is located in the central-western part of the city of Sosnowiec and it covers the area of the former "Sosnowiec" coal mine, closed down in 1997. The southern, central and north-western part of the post-mining areas was adapted for industrial investments, mainly within The Sosnowiec Subzone of The KSEZ (the "Narutowicza" Area). In 2010, the companies of Ferroli, Segu Polska and Haerus operated here. The north-eastern part of the region is allocated for residential buildings. Presently, in this area of brownfields, a limited succession of plants is noticeable. The area of the former "Sosnowiec" coal mine continues to serve industrial functions, however, they are represented by the food processing industry. The part of the post-mining buildings at Narutowicza Street are to be adapted for services.

The area of the former mine of "Sosnowiec" presents an example of the creative attitude of city authorities, who have prepared a network of technical and road infrastructure for potential investors.

The Post-Industrial Area of the Former "Silma" - Electrotechnical Plant

This area is found in the northern part of the city, on the border with Dąbrowa Górnicza. It is an area of successful transfer of the post-industrial areas into areas for services. Previously, in 1969, the motor factory "Silma" was build here and was in operation until 2004, when it was finally closed down. The post-industrial area, that is, the factory buildings, the office building and the surroundings acted, for several years, as typical brownfields, with the factory buildings in relatively good condition. Since 1997, the area has been owned by Expo Silesia, who have transformed it, changing its function from industrial to services. Sosnowiec has become one of the most important exposition centres in Poland, and in Central and Eastern Europe. The exposition area in the halls (former production halls) is 0.43 ha. The outer exposition, in the area surrounding the post-industrial buildings, is of 0,3 ha. The former factory office will be shortly transformed into a 4-star hotel.

The Post-Mining and Post-Industrial Area of "Dańdówka"

This area is located in the southern part of the city and comprises a part of The Sosnowiec Subzone of The Katowice Special Economic Zone. It covers an area of approximately 16.4 ha. This region was formerly (at the end of the 19^{th,} and beginning of the 20th centuries) an area of coal mining (partially surface) in eastern Dańdówka. In the 1970's, the so called "factory of houses" (pre-fabricated building

elements) was built in this area. The ruins of the former "factory of houses" were only partially put to use. The neighbouring area of post-mining wasteland was used in a better way. In 2000, and later, several large factories were erected here, among others, Caterpillar, GEIGER Technik Polska, Bitron POLAND, and FUEL SYSTEMS POLAND. An important element of land revitalization in this area was the location of the Pharmaceutical Faculty of The Medical University of Silesia here. The whole area was levelled and recultivated. In the part of the area designated for investors, limited plant succession is visible. A part of the area was also prepared for road investments connected with its junction to the S1 road.

2.5. Housing

Housing areas deteriorate independent of place, time, level of development or other natural and socio-economic factors. The worst situation is when the city is found in a socio-economic and spatial crisis without any possibilities to return to the positive path of development. The situation becomes more extreme in view of a superimposed demographic crisis. Shrinking cities define this type of settlement. The cities of the Katowice Conurbation – Bytom and Sosnowiec – constitute examples of such centres. It should be underlined, though, that the situation of each is different.

The core of the differences lie in the fact that the majority of the housing area in Bytom dates back to the 19th and 20th centuries, whereas for Sosnowiec, the second half of the 20th century. A crucial role in Sosnowiec is played by big block settlements from the 1970s and the 1980s. In Bytom, there are no districts with block settlements dominating the townscape, except for Stroszek/Osiedle Gen. J. Ziętka and partly, Szombierki.

There are two main problems in the area of housing in the described cities and they are also common for other cities of the Conurbation. The first lies in the fact that the low-quality, old post-industrial settlements are very costly to revitalize and, the second, refers to mining damages, mainly in Bytom (see figure 19). The effects are visible in statistics – in spite of the construction of new houses and blocks, the number of housing units has decreased in the city by about 7 thousands (table 58).

The problem of housing vacancies in Bytom is continually growing, i.e. there are more problems concerning the general technical state of buildings, especially in the central district, where the prevailing strategy of activities has consisted in demolition. On the border of the Karb district one may find the whole urban quarters with as much as 60-90% of demolished buildings. Replacements and so called ”fillings” are scarce. The bad technical condition of buildings in the city is caused by mining damages and their secondary consequences. The financial resources in the municipal budget meant for remodeling and securing buildings are insufficient.

A positive aspect is that the average living area of housing units in flats and houses as well as a rate of number of persons per 1 dwelling have risen since the 1970s and the 1980s in both cities (see table 58 in Annex). In Bytom it was about 3 m² between 1988 and 2007 and in Sosnowiec – about 4.5 m². The second index reflects the number of about 0.4 person in Bytom and Sosnowiec. This process was independent from the demolition of old and substandard buildings from the 1970s. For example, in the 1970s, the whole quarter of Sielec, in Sosnowiec, was torn down, and only a short street with historical buildings, such as a castle, church or a power station were saved.

A national demographic problem all over Poland, including the examined region, is the issue of the decreasing average number of persons living in a flat or a house (figure 20 below and tables: 59, 60, 61, and 62 in Annex). Year after year, the percentage of one-person households grows. It must be pointed out that these are households run by elderly people with limited financial capabilities (table 64). A visible, high index of social groups, consisting of the elderly and the poor, creates a problem for the revitalization of housing areas. The possibility of municipal budgets and housing associations are limited as well.

The problem of vacant houses and a large number of buildings, designated for demolition, refers practically to Bytom only. In Sosnowiec, it is of minor importance. In 2008, in the housing resources of the city of Bytom, vacant houses numbered 1205, including 79% (955) in poor technical condition. It should be estimated that an equal number of vacant houses belong to private owners, which cannot be proven though, due to the lack of relevant statistics. It would be quite expensive to renovate the buildings, considering their age and architectural value, therefore many of the buildings will simply have to be demolished. Depending on

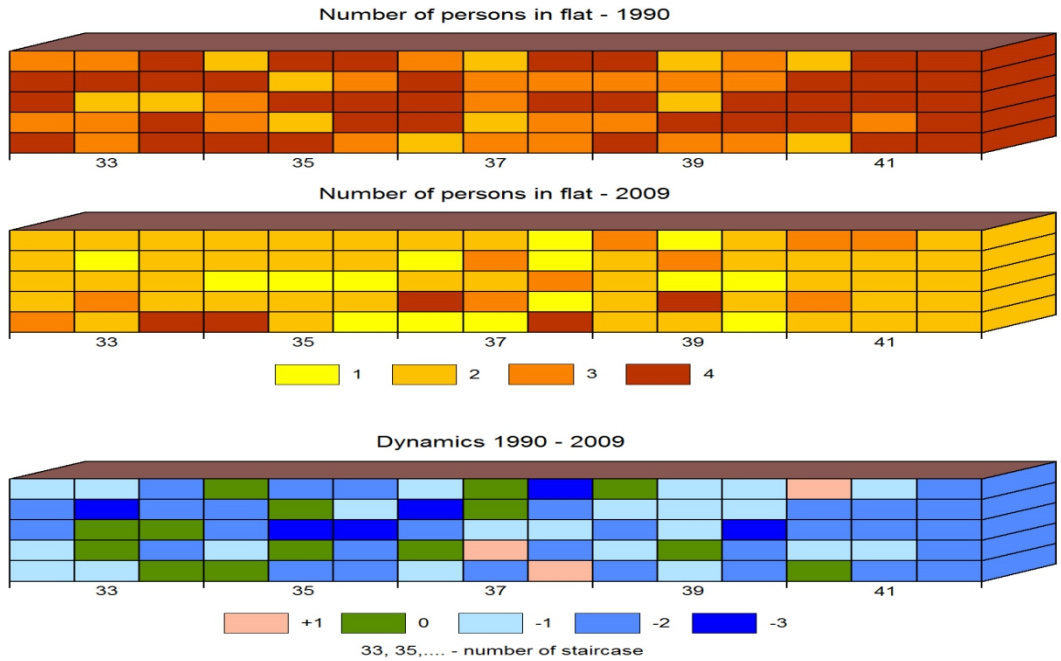
the owner, 10 to 30% of all residential buildings in Bytom are in a poor or really bad technical state.

Figure 19. Tilting of buildings as an effect of mining damages in Bytom

Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

The urgent (immediate) need to demolish buildings in Bytom in 2010 refers to 18 buildings. In the whole Silesian Province, the number reaches 49. These numbers present the magnitude of problems in this field that the analyzed city is facing. The issue of demolishing residential buildings is not a new one, for example, in the years 1970-1982, 93 buildings were demolished, and in 1995-1999, 150 buildings. In 2008, three pre-war buildings were taken down, consisting, all together, of 19 apartments. A crucial problem for Bytom is the fact that up to 90% of municipal housing and over 60% of those that belong to housing associations were established before 1945. The buildings in poor technical condition that should be swiftly demolished according to their state, as of 2010, are found in Bytom at the following addresses: 1. Chorzowska2/Katowicka 70, 2. Smolenia 13, 3. Musialika 23a, 4. Leśna 13, 5. Sienna 6, 6. Staromiejska 6, 7. Siemianowicka 75, 8. Konstytucji 103, 9. Konstytucji 105, 10. Olszewskiego 14, 11. Jochymczyka 2, 12. Żwirowa 8, 13. Brzezińska 7, 14. Piekarska 72, 15. Noskowskiego/Pasteura, 16. Łukowa/Drzewna, 17. Elsnera 3, 18. Musialika 7.

Figure 20. The issue of shrinking cities is simultaneous with the issue of shrinking blocks. An example of such is a block of flats in Sosnowiec-Dańdówka that was constructed and inhabited in 1973-1974.



Source: R. Krzysztofik, J. Runge, I. Kantor-Pietraga.

The low index comes as a natural consequence of changes on the housing market as an effect of demographic processes (table 14). In the case of Bytom, the higher index of vacancy houses is two-thirds caused by the effects of mining damages. The statistics reflect the municipal housing market. As far as the private housing market is concerned, vacancies do not make up more than 3-5%, generally under 2%. Low rates of vacancy housing are conditioned by low prices of flats offered for rent and for sale. The purchase price of a square metre, in case of flats, is similar in both cities. It varies from PLN 2500 (610 Euro) to PLN 3500 (850 Euro) in Bytom and from PLN 3000 (730 Euro) to PLN 3800 (920 Euro) in Sosnowiec. The most expensive city of the region is Katowice, with prices from PLN 3500 (850 Euro) to PLN 4800 (1150 Euro) per square metre. In Warsaw, the prices start at PLN 8000 (2000 Euro).

The presented prices show the difference in the cost of living between an interesting and developing city, and problematic, shrinking cities. Technical conditions of the buildings, or other factors, have secondary importance.

An indirect method used in the study was the analysis of migrant outflow from the cities of the Katowice Conurbation to rural areas, and research performed in the suburban commune of Psary, located 10 km from Sosnowiec, and 15 km from Bytom [Adamek, 2009]. It should be noticed that there are a lot of "inner suburban zones" in Sosnowiec, such as Nowy Klimontów, Ostrowy Górnicze, Maczki, Józefów and two in Bytom: Stolarzowice and Sucha Góra. The potential migrants decide to settle in the parts of cities with beautiful townscape and in neighbouring towns like Tarnowskie Góry, near Bytom, or Dąbrowa Górnicza or Będzin, near Sosnowiec. Tables 27 and 28 point out that migrants prefer urban areas. The outer zone of the Katowice Conurbation is not as popular as other outer zones are for big agglomerations. The Beskidy Mountains and Jurassic Landscape Park pose a serious threat to the surroundings of the agglomeration core.

Table 14. Vacancy-Housing in Bytom and in Sosnowiec, 2008

Year	Bytom		Sosnowiec	
	Total	**In bad technical condition**	**Total**	**In bad technical condition**
2008	1205 (6.7%)*	955	189 (1.6%)*	0

Explanations: *- municipal dwelling stocks only.

Source: Municipal Office in Bytom and Municipal Office in Sosnowiec.

2.6. Municipal budgets

The economic crisis and limitations connected with city shrinkage are reflected in the size and structure of municipal budgets for the cities of the region. The problem refers, in the same degree, to income, as well as expenditures. The questions were presented in detail in tables 64-76.

The first issue concerns the fact that the cities of the Katowice Conurbation are of diverse capacity, if income is taken into consideration. A group of cities including Katowice and Gliwice comprise the wealthiest cities holding the administrative district function in Poland (GDP index per capita), while Bytom and Sosnowiec are ranked in the last five positions. The comparison of income per person in the Katowice Conurbation is presented in table 63, where the quite modest budgets of both cities can be seen. They are comparable to the budgets of

smaller industrial towns, such as Świętochłowice or Piekary Śląskie. In Bytom, the per capita income of the budget in 2007 equalled about 627 Euro and in Sosnowiec – about 667 Euro. In both cases, it was about a quarter lower than the highest budget of Mysłowice.

The structure of income is an important issue. It is most profitable when the city compensates most means as its own income. Taking this condition into account, the capital of the region - Katowice (73%) and Dąbrowa Górnicza (72%) are at the top of the list. In the examined cities, the number for Bytom equals 52% and for Sosnowiec – 60%. The index for Bytom is, next to the Świętochłowice index, the lowest in the region.

In the structure of income, a significant part is comprised of means acquired from other sources, including, especially, different EU programmes. In this respect, the position of both examined cities was quite good in 2007. They were ranked in the privileged group of cities, where the share of such means equalled 5-10%. Sosnowiec, with its 10%, was in a particularly good situation in reference to the point. The number for Bytom amounted to over 5%.

In the case of Sosnowiec, an important share was made up by EU funds for the rebuilding of the sewer system in the southern and eastern part of the city. As presented in tab. 68, 69, 70 and 71 a considerable part of the municipal budget is absorbed by current expenditure of budgetary entities. In this category, a special role is played by wages and salaries.

On the other hand, it is crucial to pay attention to the structure of budget expenditures by division. Both in Sosnowiec and in Bytom, a significant part of the means is allocated to social assistance and other tasks in the sphere of social policy. In Sosnowiec, one-sixth of the budget is allocated to this cause and in Bytom, it is one-fifth. In 2007, the amounts equalled 22.5 million Euro and 25.7 million Euro, respectively. If the fact that Bytom is a less populated city is taken into consideration and it earmarks higher amounts for social assistance, it might be relevant to state that problems of such kind in this city are bigger than in Sosnowiec.

The differences are even more visible in the case of financial means allocated to housing management. In Bytom, it is 3.5% of the budget, while in Sosnowiec only 1.5%. These differences are conditioned by the earlier discussed differences in the structure, age and technical condition of the buildings. In both cities, the most

serious element of budget expenditure is made up of means earmarked for education. Their share amounts to about one-third.

To sum up, it should be stated that the modest budgets of Bytom and Sosnowiec, as for cities of such size, are burdened by indispensable or safety expenditures. Development funds that might be allocated for creative and developmental activities are limited. A good example might be the project of constructing a paleontological park, with a museum in Sosnowiec-Porąbka, that has not been implemented. This interesting and creative project was resigned from due to financial limitations.

Summary

City shrinkage, next to urban sprawl, is one of two key problems of development of large cities and metropolises in Europe. Both phenomena have become particularly intensified in the last 20 years. It shall be underlined, however, that they functioned on a different scale centuries ago.

Referring to the contemporary aspect of city shrinkage in the area of Poland, it shall be said that it affected only a part of the country and only selected metropolises. In the first case, the historical, political, cultural and psychosocial differences in particular parts of the country were influential. Some economic questions constituted an important element as well. All these factors, in general, might be summarized by the problem of second demographic transition. With a certain simplification, it shall be stated that the regions, where shrinkage is not present is of a very limited character, witness only the initial phase of the above mentioned demographic transition.

A particular case of city shrinkage diversity are the large urban agglomerations and metropolises. In the case of Poland, some of them experience shrinkage, while others demographically develop. The conditions for this phenomenon, in the aspect of specific metropolises, shall be linked with two prerequisites: the economic structure and the specifics of settlement arrangement. Both elements have been put to endurance test in the recent 20 years, with regard to the challenges brought about by the social and political transformation of the late 1980s. On the Polish level, the process of city shrinkage particularly affected the metropolises, whose economy was based on so called traditional industries, including mining, metallurgy and the textile and clothing industry (the Katowice Conurbation, the Łódź agglomeration, the Wałbrzych agglomeration). In the case of the majority of large cities located in the Katowice conurbation, a developmental burden was also caused by the polycentral settlement system and the lack of visible and, what is crucial, "alive", zone of designing the centre.

Polycentrism in this case meant that the institutions, social groups and development impulses of metropolitan nature were scattered in space, and therefore weak.

All these factors contributing to city shrinkage in the metropolises caused the emergence of new, and frequently disadvantageous, phenomena and the following challenges to solve. In some issues, urgent action was required.

The negative interaction of the shrinkage process on cities discussed in the book focused on the examples of Bytom and Sosnowiec. It shall be stressed, however, that the observed phenomena, altogether, are typical for all large and medium-size cities of the Katowice Conurbation and to some smaller ones as well. The aim of the book in this context was to find the widest possible range of the discussed phenomena through the presented exemplification and empirical material and to point out its multiplicity of aspects, both in the genesis of the phenomenon as well as its consequences. Both elements, and their multi-subject perspectives, were defined in the title of the study as paths of the studied phenomenon.

The presented diagnosis constitutes, in its assumption the starting point for further research, which should primarily point out the priorities of actions and possibilities of preventing the further intensification of the phenomena, slow down the elements that are the most harmful at present and, above all, to find solutions that would change the direction of development from defensive to offensive, bringing it back to the status it had 20 years before.

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Annex

DEMOGRAPHIC AND SOCIAL QUESTIONS

Table 15. Dynamics of population in Bytom and Sosnowiec 1897/1900-2007 and some population projection

YEAR	BYTOM			SOSNOWIEC		
	POPULATION	DYNAMICS	DYNAMICS	POPULATION	DYNAMICS	DYNAMICS
1897*S*/1900*B*	76.2	-	*100.0%*	32.3	-	100.0%
1910	105.1	*37.9%*	*137.9%*	89.0	175.5%	275.5%
1921*S*/1925*B*	114.9	*9.3%*	*150.8%*	86.5	-2.9%	267.8%
1931*S*/1933*B*	138.5	*20.5%*	*181.7%*	109.0	26%	337.5%
1939	140.1	*0.1%*	*183.8%*	129.6	18.9%	401.2%
1946!!	93.2	*-33.4%*	*122.3%*	84.3	-34.9%	260.9%
1950!!	174.0	*86.7%*	*228.3%*	96.4	14.3%	298.4%
1955	180.7	*3.8%*	*237.1%*	124.4	29.0%	385.1%
1960!!	182.6	*0.1%*	*239.6%*	131.7	5.9%	407.7%
1965	191.0	*0.4%*	*250.6%*	139.8	6.1%	432.8%
1970	187.5	*-0.2%*	*246.1%*	145.0	3.7%	448.9%
1972	189.1	*0.1%*	*248.2%*	146.1	0.7%	452.3%
1975!! (1978)	234.4*	*23.9%*	*307.6%*	197.9*	35.4%	612.7%
1980	234.3	*-0.1%*	*307.5%*	246.1	24.4%	761.9%
1981	237.8	*1.5%*	*312.1%*	251.9	2.4%	779.9%
1982	238.2	*0.1%*	*312.6%*	255.9	1.6%	792.3%
1983	238.1	*-0.1%*	*312.5%*	252.0	-1.5%	780.2%
1984	239.2	*0.1%*	*313.9%*	255.0	1.2%	789.5%
1985	238.9	*-0.1%*	*313.5%*	256.4	0.5%	793.8%
1986	239.4	*-0.1%*	*314.2%*	258.1	0.7%	799.1%
1987	239.8	*0.1%*	*314.7%*	259.9	0.7%	804.6%
1988	227.9!!	*-4.9%*	*299.1%*	258.6	-0.5%	800.6%
1989	229.8	*0.1%*	*301.6%*	259.3	-0.2%	802.8%
1990	231.2	*1.0%*	*303.4%*	259.4	-0.1%	803.1%
1991	232.2	*0.4%*	*304.7%*	259.0	-0.2%	801.8%
1992	229.2	*-1.1%*	*300.8%*	251.3	-3.0%	778.0%
1993	229.6	*-0.2%*	*301.3%*	250.4	-0.3%	775.2%
1994	228.2	*-0.6%*	*299.5%*	248.9	-0.6%	770.6%
1995	226.8	*-0.6%*	*297.6%*	247.5	-0.6%	766.2%
1996	225.3	*-0.4%*	*295.7%*	246.3	-0.5%	762.5%
1997	225.8	*0.2%*	*296.3%*	244.1	-0.9%	755.7%
1998	205.6**	*-8.9%*	*269.8%*	244.1	0.0%	755.1%
1999	203.8	*-0.9%*	*267.4%*	242.3	-0.7%	750.1%
2000	201.9	*-0.9%*	*264.9%*	241.1	-0.5%	746.4%

YEAR	BYTOM			SOSNOWIEC		
	POPULATION	DYNAMICS	DYNAMICS	POPULATION	DYNAMICS	DYNAMICS
2001	200.2	*-0.8%*	*262.7%*	239.8	-0.5%	742.4%
2002	192.6!!	*-3.8%*	*252.7%*	231.0	-3.7%	715.2%
2003	191.1	*-0.8%*	*250.8%*	229.9	-0.5%	711.8%
2004	189.5	*-0.8%*	*248.7%*	228.1	-0.8%	706.2%
2005	187.9	*-0.8%*	*246.5%*	227.2	-0.4%	703.4%
2006	186.5	*-0.7%*	*244.7%*	224.2	-1.3%	694.1%
2007	184.8	*-0.9%*	*242.5%*	222.6	-0.7%	689.2%
POPULATION PROJECTION						
2010	*176.6*	*-4.4%*	*231.7%*	*219.0*	-1.6%	678.0%
2015	*164.9*	*-6.6%*	*216.4%*	*209.2*	-4.5%	647.7%
2020	*152.4*	*-7.6%*	*200.0%*	*197.8*	-5.4%	612.4%
2025	*139.3*	*-8.6%*	*182.8%*	*184.6*	-6.7%	571.5%
2030	*126.1*	*-9.5%*	*165.5%*	*170.3*	-7.7%	527.5%

Explanations: !!-national census; *-correct of territory *in plus*; **-correct of territory *in minus*; B-Bytom, S-Sosnowiec.

Source: R. Krzysztofik, J. Runge by Statistical Yearbook of Śląskie Voivodship, 2008, Ziółkowski J, 1960 and Gawryszewski, 2005;.

Table 16. Population of cities in the Katowice Conurbation – core area 1955-2007

Cities	1955	1960	1965	1970	1975	1980	1985	1990	1995	2001	2005	2007
Katowice	199.9	270.3	286.0	305.0	343.7	355.1	363.3	366.8	351.5	338.0	317.2	312.2
Sosnowiec	**124.4**	**131.7**	**139.8**	**145.0**	**195.7**	**246.1**	**256.5**	**259.4**	**247.5**	**239.8**	**226.0**	**222.6**
Gliwice	134.8	150.2	163.4	172.0	197.2	197.5	209.7	214.2	213.4	208.4	199.5	197.4
Zabrze	182.8	190.9	198.5	197.0	203.7	196.0	198.4	205.0	201.3	196.5	191.2	189.0
Bytom	**180.7**	**182.6**	**191.0**	**187.5**	**234.4**	**234.3**	**238.9**	**231.2**	**226.8**	**200.2**	**187.9**	**184.8**
Ruda Śl.	38.9	131.7	141.2	143.0	149.6	159.1	166.1	171.0	165.9	153.0	146.6	144.6
Tychy	26.6	49.9	63.9	71.5	135.6	166.6	183.8	191.7	133.8	130.4	131.2	129.8
Dąbrowa Górn.	41.2	55.5	60.4	61.7	79.8	141.4	138.1	136.9	130.4	129.7	130.1	128.8
Chorzów	141.4	146.6	153.7	151.9	156.3	150.1	142.0	131.9	125.2	119.5	114.7	113.7
Jaworzno	31.1	53.1	60.4	63.6	74.5	89.3	95.9	99.5	98.2	97.1	96.2	95.5
Mysłowice	40.3	40.2	43.5	44.7	61.7	79.8	88.2	93.8	97.8	78.7	75.2	74.9
Siemianowice	59.4	62.4	66.1	67.7	72.1	77.1	81.4	81.1	78.1	76.1	72.7	71.6
Piekary Śl.	26.6	32.2	35.6	36.4	62.1	64.3	68.7	68.5	67.0	65.0	59.7	59.1
Świętochłowice	56.3	57.4	58.1	57.8	58.4	58.7	60.7	60.5	59.6	58.2	55.3	54.5
The GZM - region	**1284.4**	**1554.7**	**1661.6**	**1704.8**	**2024.8**	**2215.4**	**2291.7**	**2311.5**	**2196.5**	**2090.6**	**2003.5**	**1978.5**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 17. Population of cities in the Katowice Conurbation – core area, last years and population projection

Cities	2001	2002	2003	2004	2005	2006	2007	2010	*POPULATION PROJECTION*			
									2015	2020	2025	2030
Katowice	338.0	325.0	322.3	319.9	317.2	314.5	312.2	*306.8*	*288.4*	*270.2*	*250.3*	*229.3*
Sosnowiec	**239.8**	**231.0**	**229.9**	**228.1**	**226.0**	**224.2**	**222.6**	***217.6***	***209.2***	***197.8***	***184.6***	***170.3***
Gliwice	208.4	202.6	201.6	200.4	199.5	198.5	197.4	*195.5*	*184.0*	*173.7*	*162.0*	*149.6*
Zabrze	196.5	194.6	193.7	192.5	191.2	191.2	189.0	*186.9*	*170.9*	*159.5*	*147.0*	*134.0*
Bytom	**200.2**	**192.6**	**191.1**	**189.5**	**187.9**	**186.5**	**184.8**	***181.6***	***164.9***	***152.4***	***139.3***	***126.1***
Ruda Śląska	153.0	149.7	148.4	147.4	146.6	145.5	144.6	*142.9*	*123.9*	*113.0*	*101.8*	*90.7*
Tychy	130.4	132.5	132.1	131.5	131.2	130.5	129.8	*129.4*	*123.3*	*117.5*	*110.7*	*102.9*
Dąbrowa Górn.	129.7	131.9	131.4	130.8	130.1	129.6	128.8	*127.4*	*124.8*	*121.1*	*114.1*	*106.9*
Chorzów	119.5	116.6	115.8	115.2	114.7	114.0	113.7	*112.7*	*101.1*	*94.2*	*86.9*	*79.3*
Jaworzno	97.1	96.8	96.7	96.5	96.2	95.7	95.5	*94.8*	*92.3*	*89.2*	*85.3*	*80.6*
Mysłowice	78.7	75.6	75.3	75.3	75.2	75.2	74.9	*74.8*	*73.2*	*71.2*	*68.4*	*64.8*
Siemianowice Śl.	76.1	74.1	73.5	73.2	72.7	72.2	71.6	*70.3*	*67.2*	*63.8*	*59.8*	*55.6*
Piekary Śląskie	65.0	60.6	60.3	60.0	59.7	59.4	59.1	*58.3*	*54.8*	*52.0*	*48.7*	*45.3*
Świętochłowice	58.2	56.3	56.0	55.7	55.3	55.0	54.5	*53.8*	*51.2*	*48.8*	*46.0*	*43.0*
The GZM - region	**2090.6**	**2039.9**	**2028.1**	**2016.0**	**2003.5**	**1992.0**	**1978.5**	***1952.8***	***1829.2***	***1724.4***	***1604.9***	***1478.4***

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 18. Dynamics of population of cities in the GZM-region

Cities	Absolute increase (the one-basis method)					
	1960	1970	1980	1990	2001	2008
Katowice	100.0	112.8	131.4	135.7	125.0	115.5
Sosnowiec	**100.0**	**110.1**	**186.9**	**197.0**	**182.1**	**169.0**
Gliwice	100.0	114.5	131.5	142.6	138.7	131.4
Zabrze	100.0	103.2	102.7	107.4	102.9	99.0
Bytom	**100.0**	**102.7**	**128.3**	**126.6**	**109.6**	**101.2**
Ruda Śląska	100.0	108.6	120.8	129.8	116.2	109.8
Tychy	100.0	143.3	333.9	284.2	261.3	260.1
Dąbrowa Górnicza	100.0	111.2	254.8	246.7	233.7	232.0
Chorzów	100.0	103.6	102.4	83.9	81.5	77.6
Jaworzno	100.0	119.8	168.2	187.4	182.9	179.8
Mysłowice	100.0	111.2	198.5	233.3	195.8	186.3
Siemianowice Śl.	100.0	108.5	123.6	129.9	121.9	114.7
Piekary Śląskie	100.0	113.0	192.7	212.7	201.9	183.5
Świętochłowice	100.0	100.7	102.3	105.4	101.4	94.9
The GZM - region	**100.0**	**109.7**	**142.5**	**148.7**	**134.5**	**127.2**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 19. Dynamics of population of cities in the GZM-region. The chain-method

Cities	Absolute increase (the chain method)					
	1960	1970	1980	1990	2001	2008
Katowice	-	12.8	16.4	3.3	-7.9	-7.6
Sosnowiec	**-**	**10.1**	**69.7**	**5.4**	**-7.6**	**-7.2**
Gliwice	-	14.5	14.8	8.4	-2.7	-5.3
Zabrze	-	3.2	-0.5	4.6	-4.1	-3.8
Bytom	**-**	**2.7**	**24.9**	**-1.2**	**-14.4**	**-7.7**
Ruda Śląska	-	8.6	11.2	7.5	-10.5	-5.4
Tychy	-	43.3	133.0	15.1	-32.0	-0.5
Dąbrowa Górnicza	-	11.2	129.2	-3.2	-5.3	-0.7
Chorzów	-	3.6	-1.2	-12.1	-9.4	-4.9
Jaworzno	-	19.8	40.4	11.4	-2.4	-1.7
Mysłowice	-	11.2	78.5	17.5	-16.1	-4.8
Siemianowice Śl.	-	8.5	23.5	5.2	-6.2	-5.9
Piekary Śląskie	-	13.0	76.6	6.5	-5.1	-9.1
Świętochłowice	-	0.7	1.5	3.1	-3.8	-6.4
The GZM - region	**-**	**9.7**	**29.9**	**4.3**	**-9.6**	**-5.4**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 20. Number and population density as well as population dynamics in quarters of Bytom, 1988-2008

Quarters	Area (km²)	1988		2008		1988-2008
		Number of population (thousands)	Population density (per km²)	Number of population (thousands)	Population density (per km²)	Dynamics
Bobrek	2.54	5.9	2323	5.2	2047	-12%
Górniki	1.65	1.8	1090	1.1	667	-39%
Karb	3.44	8.8	2558	8.2	2384	-7%
Łagiewniki	4.64	15.8	3405	9.3	2004	-41%
Miechowice	11.52	30.1	2613	26.4	2292	-12%
Osiedle Gen. J. Ziętka	0.87	12.2	14023	9.3	10639	-24%
Rozbark	8.03	15.1	1880	16.9	2109	-11%
Stolarzowice	8.30	2.4	2891	3.5	422	+46%
Stroszek-Dąbrowa Miej.	10.66	7.6	713	14.4	1351	+89%
Sucha Góra	5.07	1.5	296	3.7	730	+147%
Szombierki	4.93	30.0	6085	25.8	5233	-14%
Śródmieście	7.81	72.1	9232	58.2	7450	-19%
Bytom	**69.5**	**203.3**	**2925**	**182.0**	**2618**	**-10%**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice and Municipal Office in Bytom.

Table 21. Number and population density in quarters of Sosnowiec, 1988-2005

Quarters	Area (km²)	1988		1995		2005	
		Number of population (thousands)	Population density (per km²)	Number of population (thousands)	Population density (per km²)	Number of population (thousands)	Population density (per km²)
Dańdówka	1.556	6.0	3856	6.0	3856	5.8	3727
Dębowa Góra	2.403	8.5	3537	7.8	3246	7.2	2996
Klimontów	4.438	8.2	1847	7.5	1690	7.2	1622
Pogoń	5.315	40.7	7657	37.2	7000	34.2	6435
Stary Sosnowiec	2.299	17.5	7612	16.8	7307	16.3	7090
Środula	1.953	18.5	9472	18.2	9319	17.7	9063
Śródmieście	4.513	53.9	11943	50.6	11212	48.2	10680
Zagórze	14.471	57.7	3987	57.1	3946	53.4	3690
Północ	3.374	0.8	237	0.6	178	0.6	178
Milowice	3.943	6.9	1750	5.9	1496	5.3	1344
Kazimierz Górniczy	3.793	8.6	2267	8.4	2214	8.3	2188
Maczki	17.411	2.0	115	2.0	115	1.9	109
Ostrowy Górnicze	5.175	3.1	599	2.9	560	2.7	522
Porąbka	1.997	1.0	500	0.9	451	0.8	400
Zawodzie	2.084	6.4	3071	6.4	3071	6.0	2879
Bobrek	2.344	0.9	384	0.9	384	0.8	341
Jęzor-Bór	6.192	4.0	646	3.7	597	3.5	565
Ludmiła-Staszic	3.282	0.9	274	1.2	365	1.0	305
Niwka-Modrzejów	4.273	12.7	2927	12.0	2808	12.6	2949
Sosnowiec	**90.816**	**258.6**	**2847**	**247.5**	**2725**	**233.6**	**2572**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 22. Dynamics of population by quarters of Sosnowiec, 1988-2005

Quarters	Dynamics 1988-1995	Dynamics 1995-2005	Dynamics 1988-2005
Dańdówka	0%	-3%	-3%
Dębowa Góra	-7%	-8%	-15%
Klimontów	-8%	-4%	-12%
Pogoń	-8%	-8%	-16%
Stary Sosnowiec	-4%	-3%	-7%
Środula	-2%	-2%	-4%
Śródmieście (Centrum)	-6%	-5%	-11%
Zagórze	-1%	-6%	-7%
Północ	-25%	0%	-25%
Milowice	-13%	-10%	-23%
Kazimierz Górniczy	-2%	-1%	-3%
Maczki	0%	-5%	-5%
Ostrowy Górnicze	-6%	-7%	-13%
Porąbka	-9%	-11%	-20%
Zawodzie	0%	-6%	-6%
Bobrek	0%	-11%	-11%
Jęzor-Bór	-7%	-5%	-12%
Ludmiła-Staszic	-7%	-17%	-10%
Niwka-Modrzejów	-6%	+5%	-1%
Sosnowiec	**-4%**	**-6%**	**-10%**

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 23. Dynamics of population in Sosnowiec's quarter Zagórze – the second, biggest block-settlement in the Katowice Conurbation, 1975-2005

Year	Number of population (thousands)	Population density (thousands)	Dynamics of population (%)	Proportion of age-groups *<18 : 18-65 : >65*
1931	7.8	1.2	0	-
1941	7.5	1.2	-4	-
1948	5.7	0.9	-27	-
1950	7.6	1.2	-2.6	-
1960	8.6	0.7	+13.0	-
1965	10.9	0.9	+40.0	-
1970	12.8	1.1	+64.0	-
1972	13.2	1.1	+69.0	32 : 57 :11
1975	14.1	1.3	+81.0	-
The end of the first stage of building the great settlement-blocks				
1978	40.1	3.3	+414.0	32 : 63 : 5
1988	57.7	3.7	+640.0	38 : 57 : 5
1995	57.1	3.9	+632.0	-
2001	55.3	3.8	+609.0	22 : 67 : 11
2005	53.4	3.7	+585.0	-

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 24. Dynamics of population in Pogoń (Sosnowiec) – old-housing type quarter, 1975-2005

Year	Number of population	Dynamics
1975	42.5	100.0%
1978	45.0	105.9%
1988	40.7	95.8%
1995	37.2	87.5%
2005	34.2	80.5%

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 25. Population migrations in cities of the GZM-region, 1988

Cities	Inflow				Outflow				Net migration
	Total	From urban areas	From rural areas	From abroad	Total	To urban areas	To rural areas	To abroad	
Bytom	**3416**	**2093**	**1311**	**12**	**6000**	**2189**	**495**	**3316**	**-2584**
Chorzów	1849	1337	504	8	3683	2899	183	601	-1834
Dąbrowa Górn.	4050	2419	1624	7	2198	1543	281	374	+1852
Gliwice	1538	904	632	2	2020	1403	433	184	-482
Jaworzno	1081	539	532	10	894	664	203	27	+187
Katowice	6578	4567	1985	26	4916	3625	547	744	+1662
Mysłowice	2106	1382	719	5	1171	795	144	232	+935
Piekary Śląskie	1128	794	332	2	919	563	143	213	+209
Ruda Śląska	2540	1834	701	13	1861	1348	287	226	+679
Siemianowice Śl.	2031	1686	342	3	1028	758	125	145	+1003
Sosnowiec	**4077**	**2315**	**1761**	**1**	**3202**	**2688**	**515**	**-**	**+874**
Świętochłowice	1403	1098	304	1	1301	1039	94	168	+102
Tychy	1947	1158	782	7	1875	1427	255	193	+72
Zabrze	3550	1779	1765	6	2524	1482	481	561	+1026

Source: Statistical Office in Katowice.

Table 26. Population migrations in cities of the GZM-region, 2001

Cities	Inflow				Outflow				Net migration
	Total	From urban areas	From rural areas	From abroad	Total	To urban areas	To rural areas	From abroad	
Bytom	**558**	**435**	**123**	**5**	**1447**	**1016**	**431**	**463**	**-1347**
Chorzów	1309	1135	174	9	1063	852	211	615	-360
Dąbrowa Górn.	1238	991	247	1	1164	857	307	54	+21
Gliwice	1285	971	314	47	1397	893	504	459	-524
Jaworzno	368	274	94	4	463	283	180	33	-124
Katowice	2300	1825	475	67	3017	2474	543	578	-1228
Mysłowice	607	500	107	12	481	396	85	90	+48
Piekary Śląskie	426	360	66	3	371	233	138	233	-175
Ruda Śląska	647	543	104	23	879	655	224	761	-970
Siemianowice Śl.	574	493	81	11	612	521	91	144	-171
Sosnowiec	**1510**	**1135**	**375**	**11**	**2022**	**1629**	**393**	**61**	**-562**
Świętochłowice	481	414	67	4	496	422	74	165	-176
Tychy	810	628	182	27	1119	738	381	162	-444
Zabrze	957	682	275	24	1168	787	381	1154	-1341

Explanation: Migrations *from* and *to abroad* contain in groups: *from urban areas* and *rural areas*.

Source: Statistical Office in Katowice.

Table 27. Population migrations in cities of the GZM-region, 2007

Cities	Inflow				Outflow				Net migration
	Total	From urban areas	From rural areas	From abroad	Total	To urban areas	To rural areas	To abroad	
Bytom	**1510**	**1260**	**250**	**37**	**2596**	**1474**	**1122**	**458**	**-1086**
Chorzów	1556	1371	185	53	1549	1099	450	213	+7
Dąbrowa Górn.	1309	1025	14	30	1734	1184	550	105	-425
Gliwice	1617	1111	506	111	2740	1434	1306	419	-1123
Jaworzno	525	391	134	42	756	408	348	140	-231
Katowice	2897	2361	536	104	4490	3218	1272	447	-1593
Mysłowice	895	751	144	30	945	640	305	105	-50
Piekary Śląskie	609	481	128	24	754	423	331	109	-145
Ruda Śląska	1046	901	145	30	1763	972	791	482	-717
Siemianowice Śl.	688	575	113	26	1021	711	310	148	-333
Sosnowiec	**1587**	**1290**	**297**	**31**	**2986**	**2188**	**798**	**131**	**-1399**
Świętochłowice	635	548	87	25	897	668	229	113	-262
Tychy	993	726	267	56	1805	1009	796	152	-812
Zabrze	1338	1031	307	61	2298	1157	1141	605	-960

Explanation: Migrations *from* and *to abroad* contain in groups: *from urban areas* and *rural areas*.

Source: Statistical Office in Katowice.

Table 28. Migration inflow to suburban – rural commune Psary, 2004-2008

Cities	2004	2006	2008	2004-2008	% of total
Będzin	71	58	48	304	34.7
Bytom	**3**	**3**	**6**	**29**	**3.3**
Chorzów	3	6	4	14	1.6
Czeladź	2	10	1	37	4.2
Dąbrowa Górnicza	42	37	12	154	17.7
Gliwice	0	0	1	3	0.3
Jaworzno	1	1	0	2	0.2
Katowice	11	11	9	68	7.8
Mysłowice	0	1	0	8	0.9
Piekary Śląskie	0	2	1	10	1.1
Ruda Śląska	0	4	3	7	0.8
Siemianowice Śląskie	4	14	5	34	3.9
Sosnowiec	**35**	**54**	**31**	**189**	**21.6**
Świętochłowice	1	5	0	7	0.8
Tarnowskie Góry	0	1	0	2	0.2
Tychy	1	0	0	6	0.7
Zabrze	0	0	2	2	0.2
Total	**174**	**207**	**123**	**876**	**100**

Source: Adamek, 2009, s. 68.

Table 29. Death rate (deaths per 1000 population) in cities of the Katowice Conurbation, 1988-2007

Cities	1988	2001	2007	Dynamics in %		
				1988-2001	2001-2007	1988-2007
Bytom	**10.5**	**10.2**	**11.4**	**-0.3**	**+1.2**	**+0.9**
Chorzów	14.6	12.7	13.2	-1.9	+0.5	-1.4
Dąbrowa Górnicza	10.4	10.3	10.8	-0.1	+0.5	+0.4
Gliwice	9.5	9.0	9.9	-0.5	+0.9	+0.4
Jaworzno	8.7	9.1	9.7	+0.4	+0.6	+1.0
Katowice	11.6	10.4	11.4	-1.2	+1.0	-0.2
Mysłowice	9.8	8.6	10.2	-1.2	+1.6	+0.4
Piekary Śląskie	11.4	9.8	11.0	-1.6	+1.2	-0.4
Ruda Śląska	11.1	10.3	11.2	-0.8	+0.9	+0.1
Siemianowice Śląskie	10.8	10.5	12.0	-0.3	+1.5	+1.2
Sosnowiec	**10.0**	**10.2**	**11.2**	**+0.2**	**+1.0**	**+1.2**
Świętochłowice	12.5	11.8	11.5	-0.7	-0.3	-1.0
Tychy	6.4	7.7	8.4	+1.3	+0.7	+2.0
Zabrze	10.5	8.7	9.0	-1.8	+0.3	-1.5

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 30. Infants death rate (deaths of infants per 1000 live births) in cities of the Katowice Conurbation, 1988-2007

Cities	1988	2001	2007	Dynamics in %		
				1988-2001	2001-2007	1988-2007
Bytom	**10.5**	**12.2**	**9.4**	**+1.7**	**-2.8**	**-1.1**
Chorzów	14.4	8.0	8.0	-6.4	0.0	-6.4
Dąbrowa Górnicza	10.4	10.1	5.2	-0.3	-4.9	-5.2
Gliwice	9.5	7.6	4.7	-1.9	-3.9	-4.8
Jaworzno	8.7	3.7	6.8	-5.0	+3.1	-1.9
Katowice	11.6	15.4	11.9	+3.8	-3.5	+0.3
Mysłowice	9.8	12.4	10.8	+2.6	-1.6	+1.0
Piekary Śląskie	11.4	11.9	3.9	+0.5	-8.0	-7.5
Ruda Śląska	11.1	13.9	4.2	+2.8	-9.7	-6.9
Siemianowice Śląskie	10.8	8.2	11.9	-2.6	+3.7	+1.1
Sosnowiec	**10.0**	**10.5**	**9.6**	**+0.5**	**-0.9**	**-0.4**
Świętochłowice	12.6	6.4	9.3	-6.2	+2.9	-3.3
Tychy	6.4	3.6	9.0	-2.8	+5.4	+2.6
Zabrze	10.5	9.5	4.8	-1.0	-4.7	-5.7

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 31. Fertility rate in cities of the Katowice Conurbation, 1988-2007

Cities	2001	2007	Dynamics in %
			2001-2007
Bytom	**29.9**	**40.3**	**+34.8**
Chorzów	33.0	44.2	+33.9
Dąbrowa Górnicza	26.2	38.9	+48.5
Gliwice	27.1	37.3	+37.6
Jaworzno	-	39.0	-
Katowice	26.2	37.9	+44.6
Mysłowice	-	41.1	-
Piekary Śląskie	-	38.0	-
Ruda Śląska	32.4	42.2	+30.2
Siemianowice Śląskie	-	40.9	-
Sosnowiec	**25.3**	**36.9**	**+45.8**
Świętochłowice	-	43.3	-
Tychy	28.7	43.6	+51.9
Zabrze	30.6	36.4	+18.9

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 32. Ageing index, youth rate, elderly rate as well as youth dependency rate and old-age dependency rate in Bytom and in Sosnowiec, 1988-2007

INDEX	BYTOM			SOSNOWIEC		
	1988	2001	2007	1988	2001	2007
Population (total)	228.3	200.2	184.8	258.6	239.8	222.6
Population (0-14)	52.8	32.2	27.2	60.6	32.2	28.0
Population (15-64)	156.7	147.1	130.2	175.5	178.7	163.8
Population (65 and more)	18.7	22.9	27.4	22.6	28.9	30.8
Group of dependency (0-14 and 65 and more)	71.6	55.1	54.6	83.1	61.1	58.8
Ageing index	35.4	71.1	100.7	37.3	89.7	110.0
Youth rate	23.1	16.1	14.7	23.4	13.4	12.6
Elderly rate	8.2	11.4	14.8	8.7	12.0	13.8
Dependency rate	45.66	37.97	41.94	47.33	34.22	35.91
Youth dependency rate	33.7	21.9	20.9	34.5	18.0	17.1
Old-age dependency rate	11.9	15.6	21.0	12.9	16.2	18.8

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 33. Number of places in kindergartens, primary schools and gymnasiums as well as doctors and beds in hospitals in Bytom and in Sosnowiec, 1988-2007

INDEX	BYTOM			SOSNOWIEC		
	1988	2001	2007	1988	2001	2007
Number of places in kindergartens and	5434	4170	4004	6393	5532	4650
pupils in primary schools only (1988) or primary schools + gymnasiums (2002 and 2007)	27602	13519+7090	9982+6047	33781	13833+8586	9921+6336
Primary schools 1-8 classes (1988) and primary schools + gymnasiums (2002 and 2007)	53	36+16=52	28+21=49	45	45+24=69	37+30=67
Closures of social infrastructures (number of closed schools, kindergartens)	- -	-15Kin -16PS	-3 Kin -8PS	- -	-11Kin 0PS	-1 Kin -7PS
Number of doctors per 1,000 inhabitants	3.0	2.9	-	2.8	3.4	-
Number of beds in hospitals per 10000 inhabitants	100.1	83.0	84.5	90.2	80.7	73.1

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

SOCIO-ECONOMIC QUESTIONS

Table 34. Registered unemployment in cities of the Katowice Conurbation.

Cities	Number of unemployed persons										
	1993	**1995**	**1997**	**1999**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Bytom	**7757**	**9201**	**7612**	**11358**	**16031**	**17775**	**17853**	**16912**	**15186**	**12341**	**8935**
Chorzów*	4845	4767	4509	10196	9899	10782	11141	10620	9899	7946	5190
Dąbrowa Górnicza	11968	8174	5668	7486	11114	12300	12687	12138	10846	9193	6906
Gliwice	7787	6501	4654	11722	12499	13301	13049	12611	11506	8685	5933
Jaworzno	4218	3851	2632	4323	7436	7884	7785	7228	5901	4770	3968
Katowice	10025	7262	4732	8181	14748	16970	16735	15258	14146	10810	6826
Mysłowice	3793	341	2257	3321	5004	5376	5571	5125	4518	3615	2700
Piekary Śląskie*	2119	2102	1351	-	3639	4499	4653	4417	3879	3230	2645
Ruda Śląska*	7586	5104	3372	5784	8758	9346	8205	7469	6611	5115	3196
Siemianowice Śl.*	3181	2975	2375	-	6134	6600	7180	6195	5190	3961	2789
Sosnowiec	**13931**	**11966**	**8006**	**12699**	**19362**	**22079**	**20231**	**19692**	**17216**	**13167**	**9854**
Świętochłowice*	2988	2498	1830	-	4268	4703	4622	4559	3847	3062	1743
Tychy	7139	6267	3235	9748	8969	8506	7808	7183	6635	4967	3091
Zabrze	9600	8409	6283	10142	15341	15264	15271	15148	13375	11739	7897

* – Unemployment rate in cities: Chorzów and Siemianowice Śląskie, Ruda Śląska and Świętochłowice and Piekary Śląskie had been counted together until 1999.

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 35. Index of registered unemployment in cities of the Katowice Conurbation

Cities	Registered unemployed persons (percentage)										
	1993	**1995**	**1997**	**1999**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Bytom	**8.7**	**10.3**	**9.0**	**14.1**	**21.6**	**25.0**	**27.1**	**26.7**	**24.6**	**21.1**	**15.9**
Chorzów*	10.4	10.8	9.7	15.0	21.1	22.7	24.6	23.7	22.3	18.4	12.6
Dąbrowa Górnicza	15.6	11.3	8.2	11.3	16.6	18.9	20.2	19.9	18.2	15.5	11.6
Gliwice	7.5	6.6	4.8	8.3	13.5	14.5	14.9	14.0	12.5	9.3	6.2
Jaworzno	10.5	10.7	7.5	12.7	21.5	23.1	23.8	22.7	17.7	14.4	13.0
Katowice	4.6	3.3	2.2	3.7	7.0	8.2	8.4	7.7	7.1	5.4	3.3
Mysłowice	10.1	10.2	6.8	10.3	15.4	16.4	18.0	17.0	15.1	12.2	9.1
Piekary Śląskie*	-	-	-	-	18.0	21.9	23.2	21.9	17.7	17.1	14.5
Ruda Śląska*	12.3	11.2	6.7	11.7	15.3	16.5	15.1	14.2	13.0	10.3	6.8
Siemianowice Śl.*	-	-	-	-	24.8	27.4	31.1	28.1	24.0	18.5	13.6
Sosnowiec	**14.3**	**12.7**	**8.4**	**14.2**	**21.6**	**23.7**	**22.9**	**22.9**	**20.4**	**16.3**	**12.0**
Świętochłowice*	-	-	-	-	24.0	27.1	28.2	29.0	25.7	21.2	12.8
Tychy	9.3	8.9	5.0	8.1	16.0	15.7	14.3	13.1	12.0	8.8	5.2
Zabrze	12.5	10.8	8.8	15.3	23.0	23.3	23.6	23.4	21.0	18.7	13.0

* – Unemployment rate in cities: Chorzów and Siemianowice Śląskie, Ruda Sląska and Świętochłowice and Piekary Śląskie had been counted together until 1999.

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 36. Employment rate and activity rate in cities of the GZM-region, 2001

Cities	Employed persons	Unemployed persons	Employed and unemployed total	Working age population	Employment rate	Activity rate
	In thousands				In %	
Bytom	**41.8**	**16.0**	**57.8**	**129.3**	**32.3**	**44.7**
Chorzów	28.0	9.9	37.9	75.7	37.0	50.1
Dąbrowa Górnicza	41.7	11.1	52.8	86.6	48.1	61.0
Gliwice	62.7	12.5	75.2	139.6	44.9	53.9
Jaworzno	20.6	7.4	28.0	61.6	33.4	45.4
Katowice	156.2	14.7	170.9	217.9	71.7	78.4
Mysłowice	22.9	5.0	27.9	50.3	45.5	55.5
Piekary Śląskie	14.1	3.6	17.7	41.8	33.7	42.3
Ruda Śląska	40.1	8.8	48.9	98.9	40.5	49.4
Siemianowice Śl.	12.3	6.1	18.4	49.8	24.7	36.9
Sosnowiec	**49.6**	**19.4**	**69.0**	**161.6**	**30.7**	**42.7**
Świętochłowice	10.6	4.3	14.9	38.3	27.7	38.9
Tychy	34.9	9.0	43.9	85.7	40.7	51.2
Zabrze	41.9	15.3	57.2	125.9	33.3	45.4

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 37. Employment rate and activity rate in cities of the GZM-region, 2007

Cities	Employed persons	Unemployed persons	Employed and unemployed total	Working age population	Employment rate	Activity rate
	In thousands				In %	
Bytom	**33.2**	**8.9**	**42.1**	**120.2**	**27.6**	**35.0**
Chorzów	25.5	5.2	30.7	72.0	28.6	42.6
Dąbrowa Górnicza	41.2	6.9	48.1	89.2	31.2	53.9
Gliwice	70.2	5.9	76.1	131.9	53.2	57.7
Jaworzno	19.9	4.0	23.9	63.0	31.6	37.9
Katowice	155.7	6.8	162.5	202.4	76.9	80.3
Mysłowice	20.5	2.7	23.2	50.2	40.8	46.2
Piekary Śląskie	11.8	2.6	14.4	38.7	30.5	37.2
Ruda Śląska	35.6	3.2	38.8	95.1	37.4	40.8
Siemianowice Śl.	12.3	2.8	15.1	47.4	25.9	31.8
Sosnowiec	**51.5**	**9.8**	**61.3**	**152.2**	**33.8**	**40.3**
Świętochłowice	8.6	1.7	10.2	36.0	23.9	28.3
Tychy	43.8	3.1	46.9	90.0	48.7	52.1
Zabrze	40.2	7.9	47.9	125.1	32.1	38.3

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 38. Dynamics of employment rate and activity rate in cities of the GZM-region, 2001-2007

Cities	Employment rate	Activity rate
	In %	
Bytom	**-4.7**	**-9.7**
Chorzów	-8.4	-7.5
Dąbrowa Górnicza	-13.7	-7.1
Gliwice	+8.3	+3.8
Jaworzno	-1.8	-7.5
Katowice	+5.2	+1.9
Mysłowice	-4.7	-9.3
Piekary Śląskie	-3.2	-5.1
Ruda Śląska	-3.1	-8.6
Siemianowice Śl.	+1.2	-5.1
Sosnowiec	**+3.1**	**-2.4**
Świętochłowice	-3.8	-10.6
Tychy	+8.0	+0.9
Zabrze	-1.2	-7.1

Source: R. Krzysztofik, J. Runge.

ECONOMIC QUESTIONS

Table 39. GDP index per capita in cities of Poland, 2008. The richest cities

Position in the ranking (diminishing rates)	City	GDP per capita in PLN and in (Euro)
1	Warszawa	4333 (1054.2)
2	Sopot	4127 (1004.1)
3	Płock	4103 (998.3)
4	Świnoujście	3421 (832.4)
5	Wrocław	3366 (819.0)
6	Krosno	3124 (760.1)
7	***Katowice***	***3052 (742.6)***
8	Nowy Sącz	2937 (714.6)
9	Poznań	2923 (711.2)
10	Opole	2916 (709.5)
11	**Dąbrowa Górnicza**	***2910 (708.0)***
12	Suwałki	2904 (706.6)
13	Słupsk	2880 (700.7)
14	***Gliwice***	***2858 (695.4)***
15	Rybnik	2804 (682.2)

Source: Statistical Office.

Table 40. GDP index per capita in cities of Poland, 2008. The poorest cities

Position in the ranking (increasing rates)	City	GDP per capita in PLN and in (Euro)
1	Świętochłowice	1782 (433.6)
2	Żory	1796 (437.0)
3	**Sosnowiec**	**1978 (481.3)**
4	Piekary Śląskie	2011 (489.3)
5	**Bytom**	**2074 (504.6)**

Source: Statistical Office in Warsaw.

Table 41. Average monthly gross wages and salaries (in PLN) in cities of the GZM-region, 2008

Cities	Total	Sector		Agriculture, forestry	Industry, construction	Services	
		Public	Private			Market	Non-market
Bytom	**2480**	**2649**	**2286**	**2017**	**2483**	**2383**	**2539**
Chorzów	2494	2588	2428	1559	2854	2112	2628
Dąbrowa Górnicza	3088	3204	3033	1614	3325	2795	2763
Gliwice	3146	3210	3108	2554	3197	3013	3220
Jaworzno	3230	3686	2521	-	3846	2584	2589
Katowice	3727	4038	3132	2943	4190	3120	3251
Mysłowice	2423	2566	2364	-	2553	2125	2592
Piekary Śląskie	2396	2607	2210	-	2356	2145	2589
Ruda Śląska	2511	2709	2364	1472	2438	2486	2601
Siemianowice Śl.	2585	2547	2604	1344	2829	2360	2471
Sosnowiec	**2525**	**2762**	**2375**	**1599**	**2751**	**2173**	**2597**
Świętochłowice	2381	2510	2307	2060	2372	2287	2478
Tychy	2766	2687	2789	-	2963	2553	-
Zabrze	2804	2748	2847	-	3163	2471	-

Source: Statistical Office in Katowice.

Table 42. Average monthly gross wages and salaries (in Euro) in cities of the GZM-region, 2008

Cities	Total	Sector		Agriculture, forestry	Industry, construction	Services	
		Public	Private			Market	Non-market
Bytom	**603**	**644**	**556**	**491**	604	**580**	**617**
Chorzów	607	630	591	379	694	514	639
Dąbrowa Górnicza	751	780	738	393	809	680	672
Gliwice	765	781	756	621	778	733	783
Jaworzno	786	897	613	-	936	629	630
Katowice	907	983	762	716	1019	759	791
Mysłowice	589	624	575	-	621	517	631
Piekary Śląskie	583	634	538	-	573	522	630
Ruda Śląska	611	659	575	358	593	605	633
Siemianowice Śl.	629	620	633	327	688	574	601
Sosnowiec	**614**	**672**	**578**	**389**	**669**	**529**	**632**
Świętochłowice	579	611	561	501	577	556	603
Tychy	673	654	678	-	721	621	-
Zabrze	682	669	693	-	770	601	-

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 43. Structure of employed in cities of the GZM-region, 2000-2007

Cities	Employed in % of total											
	Agriculture, forestry			Industry, construction			Market services			Non-market services		
	1988*	2000	2007	1988	2000	2007	1988	2000	2007	1988	2000	2007
Bytom	-	**0.8**	**0.3**	**61.8**	**46.0**	**34.7**	**18.6**	**29.7**	**34.7**	**19.6**	**23.5**	**30.2**
Chorzów	-	1.4	0.2	58.9	41.2	33.1	20.1	33.1	39.6	21.0	24.3	27.1
Dąbrowa Górnicza	-	0.1	0.2	75.8	62.3	54.9	12.0	23.5	29.8	12.2	14.0	15.2
Gliwice	-	0.5	0.5	63.7	41.8	42.8	15.5	37.4	38.7	20.8	20.2	18.0
Jaworzno	-	0.1	0.1	68.2	50.9	48.3	18.8	29.7	28.9	13.0	19.2	22.7
Katowice	-	0.3	0.2	51.4	35.4	28.3	25.8	42.4	48.6	22.8	21.9	22.9
Mysłowice	-	0.3	0.0	68.3	57.5	54.7	17.0	26.0	27.1	14.7	16.2	18.1
Piekary Śląskie	-	0.6	0.0	72.6	58.7	53.1	14.6	19.3	23.2	12.8	21.4	23.7
Ruda Śląska	-	0.2	0.3	72.3	67.9	55.8	14.9	17.2	24.7	12.8	14.7	19.2
Siemianowice Śl.	-	0.2	0.2	70.2	49.1	43.0	12.6	30.1	32.7	17.2	20.6	24.1
Sosnowiec	-	**0.3**	**0.3**	**64.2**	**43.3**	**37.3**	**15.4**	**30.2**	**37.8**	**20.4**	**26.1**	**24.6**
Świętochłowice	-	0.6	0.3	67.3	50.5	41.3	10.9	24.8	35.0	21.8	24.0	23.3
Tychy	-	0.4	0.1	67.2	50.7	55.9	17.1	31.1	29.8	15.7	17.9	14.1
Zabrze	-	0.1	0.0	66.1	44.3	38.6	12.5	29.0	34.4	21.4	26.5	27.0

Signature: * – agriculture and forestry were counted with market services. It should be noted that share of these sections probably were lesser than 1% in each of cities.

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 44. Structure of employed in cities of the GZM-region, 1988-2000. Dynamics

Cities	*Dynamics in %*			
	Agriculture, forestry	Industry, construction	Market services	Non-market services
	Dynamics 1988-2000	Dynamics 1988-2000	Dynamics 1988-2000	Dynamics 1988-2000
Bytom	-	**-15.8**	**+11.1**	**+3.9**
Chorzów	-	-17.7	+13.1	+3.3
Dąbrowa Górnicza	-	-13.5	+11.5	+1.8
Gliwice	-	-21.9	+21.9	-0.4
Jaworzno	-	-17.3	+10.9	+6.2
Katowice	-	-16.0	+16.6	-0.9
Mysłowice	-	-10.8	+9.0	+1.5
Piekary Śląskie	-	-13.9	+4.7	+8.6
Ruda Śląska	-	-4.4	+3.3	+1.9
Siemianowice Śl.	-	-21.1	+17.5	+3.4
Sosnowiec	-	**-20.9**	**+14.8**	**+5.7**
Świętochłowice	-	-16.8	+13.9	+2.2
Tychy	-	-16.5	+14.0	+2.2
Zabrze	-	-21.8	+16.5	+5.1

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 45. Structure of employed in cities of the GZM-region, 2000-2007. Dynamics

Cities	Dynamics in %			
	Agriculture, forestry	Industry, construction	Market services	Non-market services
	Dynamics 2000-2007	Dynamics 2000-2007	Dynamics 2000-2007	Dynamics 2000-2007
Bytom	**-63%**	**-25%**	**+17%**	**+28%**
Chorzów	-86%	-20%	+20%	+11%
Dąbrowa Górnicza	+100%	-12%	+27%	+8%
Gliwice	0%	+2%	-3%	-11%
Jaworzno	0%	-5%	-3%	+18%
Katowice	-33%	-20%	+15%	+5%
Mysłowice	-300%	-7%	+4%	+12%
Piekary Śląskie	-600%	-10%	+20%	+11%
Ruda Śląska	+33%	-18%	+30%	+30%
Siemianowice Śl.	0%	-12%	+9%	+17%
Sosnowiec	**0%**	**-14%**	**+25%**	**-6%**
Świętochłowice	-100%	-18%	+41%	-3%
Tychy	-25%	+10%	-4%	-21%
Zabrze	-100%	-13%	+19%	+2%

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 46. Structure of employed in cities of the GZM-region, 1988-2007. Dynamics

Cities	Dynamics in %			
	Agriculture, forestry	Industry, construction	Market services	Non-market services
	Dynamics 1988-2007	Dynamics 1988-2007	Dynamics 1988-2007	Dynamics 1988-2007
Bytom	-	**-27.1**	**+16.1**	**+10.6**
Chorzów	-	-25.8	+19.5	+7.1
Dąbrowa Górnicza	-	-20.9	+17.8	+3.0
Gliwice	-	-20.9	+23.2	-2.8
Jaworzno	-	-19.9	+10.1	+9.7
Katowice	-	-23.1	+22.8	+0.1
Mysłowice	-	-13.6	+10.1	+3.4
Piekary Śląskie	-	-19.5	+8.6	+10.9
Ruda Śląska	-	-16.5	+9.8	+6.4
Siemianowice Śl.	-	-27.2	+20.1	+6.9
Sosnowiec	-	**-26.0**	**+22.4**	**+4.2**
Świętochłowice	-	-26.0	+24.1	+1.5
Tychy	-	-11.3	+12.7	-1.6
Zabrze	-	-27.5	+21.9	+5.6

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 47. Employed in cities of the GZM-region by sections of the NACE in 2005

SECTIONS	BY	CH	DG	GL	JA	KA	MY	PS	RS	SI	SO	SW	TY	ZA
TOTAL	**61535**	47423	58456	99046	31077	370247	26766	14241	38228	23284	87087	13575	53698	61133
A+B	**389**	215	112	421	41	663	144	69	97	61	688	47	144	85
C+D+E	**11066**	9213	19022	24917	9940	150693	4456	2512	6477	5656	19601	3023	14215	16226
C	**2384**	73	137	35	5590	101550	55	94	52	61	1866	52	6	482
D	**7541**	8520	17142	23651	3924	39143	4368	2047	5524	5532	17306	2971	13424	11537
E	**1141**	620	1743	1231	426	10000	33	371	901	63	429	-	785	4207
F	**7878**	4358	6481	10237	2114	24576	4692	1251	3792	2849	8397	2133	4693	7129
G	**13136**	10685	12538	18992	6261	51894	6567	4088	9713	6206	21519	3404	13475	15183
H	**1938**	1511	1547	2113	561	5183	783	388	1064	471	2010	387	1322	1251
I	**2436**	2284	3458	3909	2432	11422	1147	537	1572	1028	5302	674	2563	4695
J	**1124**	767	818	1570	674	11189	515	239	666	379	1580	179	1344	900
K	**6558**	7789	5259	14728	2457	32248	2916	1049	4203	2163	10534	1093	6131	5704
L	**2245**	1134	913	4531	787	26864	544	313	989	485	1630	174	728	1103
M	**5195**	3114	3689	9460	2546	20004	1901	1185	3646	1606	5903	1005	3468	4286
N	**5522**	3172	2457	4704	2112	19089	1704	1659	4461	1531	7182	868	3305	5539
O	**4084**	3181	2126	3462	1152	16420	1307	951	1658	849	2738	588	2310	3032
P	-	-	-	2	-	-	-	-	-	-	2	-	-	-
Q	-	-	-	-	-	2	-	-	-	-	1	-	-	-

NUMBER AND PERCENTAGE OF EMPLOYED IN ECONOMIC INSTITUTIONS BY REGISTERED OFFICE OF INSTITUTION

Explanations: Cities – BY- Bytom, CH – Chorzów, DG – Dąbrowa Górnicza, GL – Gliwice, JA – Jaworzno, KA – Katowice, MY – Mysłowice, PS – Piekary Śląskie, RS – Ruda Śląska, SI – Siemianowice Śląskie, SO – Sosnowiec, SW – Świętochłowice, TY – Tychy, ZA – Zabrze; The NACE's sections: A – agriculture, hunting and forestry, B – fishing, C – Mining and quarrying, D – manufacturing, E – electricity, gas and water supply, F – construction, G – wholesale and retail trade; repair motor vehicles, motorcycles and personal and household goods, H – hotels and restaurants, I – transport, storage and communication, J – financial intermediation, K – real estate, renting and business activities, L – public administration and defense; compulsory social security, M – education, N – health and social work, O – other community, social and personal service activities, P – private households with employed persons, Q – extra-territorial organizations and bodies.

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 48. Share of employed in cities of the GZM-region by sections of the NACE in 2005

SECTIONS	BY	CH	DG	GL	JA	KA	MY	PS	RS	SI	SO	SW	TY	ZA
TOTAL	**100.0**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	**100.0**	100.0	100.0	100.0
A+B	**0.6**	0.4	0.2	0.4	0.1	0.2	0.6	0.5	0.2	0.3	**0.8**	0.3	0.3	0.1
C+D+E	**18.0**	19.4	32.5	25.1	32.0	40.7	16.6	17.6	16.9	24.3	**22.5**	22.3	26.4	26.5
C	**3.9**	0.1	0.2	0.0	18.0	27.4	0.2	0.7	0.1	0.3	**2.1**	0.4	0.0	0.8
D	**12.2**	18.0	29.3	23.9	12.6	10.6	16.3	14.4	14.4	23.7	**19.9**	21.9	25.0	18.9
E	**1.8**	1.3	3.0	1.2	1.4	2.7	0.1	2.6	2.3	0.3	**0.5**	-	1.5	6.9
F	**12.8**	9.2	11.1	10.3	6.8	6.6	17.5	0.8	9.9	12.2	**9.6**	15.7	8.7	11.7
G	**21.3**	22.5	21.4	19.2	20.1	14.0	24.5	28.7	25.4	26.6	**24.7**	25.1	25.1	24.8
H	**3.1**	3.2	2.6	2.1	1.8	1.4	2.9	2.7	2.8	2.0	**2.3**	2.8	2.5	2.0
I	**3.9**	4.8	5.9	3.9	7.8	3.1	4.3	3.8	4.1	4.4	**6.1**	5.0	4.8	7.7
J	**1.8**	1.6	1.4	1.6	2.2	3.0	1.9	1.7	1.7	1.6	**1.8**	1.3	2.5	1.5
K	**10.6**	16.4	9.0	14.9	7.9	8.7	10.9	7.4	11.0	9.3	**12.1**	8.0	11.4	9.3
L	**3.6**	2.4	1.6	4.6	2.5	7.2	2.0	2.2	2.6	2.1	**1.9**	1.3	1.3	1.8
M	**8.4**	6.6	6.3	9.6	8.2	5.4	7.1	8.3	9.5	6.9	**6.8**	7.4	6.4	7.0
N	**9.0**	6.7	4.2	4.7	6.8	5.1	6.4	11.6	11.7	6.6	**8.2**	6.4	6.1	9.1
O	**6.6**	6.7	3.6	3.4	3.7	4.4	4.9	6.7	4.3	3.6	**3.1**	4.3	4.31	4.9
P	-	-	-	0.0	-	-	-	-	-	-	**0.0**	-	-	-
Q	-	-	-	-	-	0.0	-	-	-	-	**0.0**	-	-	-

NUMBER AND PERCENTAGE OF EMPLOYED IN ECONOMIC INSTITUTIONS BY REGISTERED OFFICE OF INSTITUTION

Explanations: Cities – BY- Bytom, CH – Chorzów, DG – Dąbrowa Górnicza, GL – Gliwice, JA – Jaworzno, KA – Katowice, MY – Mysłowice, PS – Piekary Śląskie, RS – Ruda Śląska, SI – Siemianowice Śląskie, SO – Sosnowiec, SW – Świętochłowice, TY – Tychy, ZA – Zabrze; The NACE's sections: A – agriculture, hunting and forestry, B – fishing, C – Mining and quarrying, D – manufacturing, E – electricity, gas and water supply, F – construction, G – wholesale and reatail trade; repair motor vehicles, motorcycles and personal and household goods, H – hotels and restaurants, I – transport, storage and communication, J – financial intermediation, K – real estate, renting and business activities, L – public administration and defense; compulsory social security, M – education, N – health and social work, O – other community, social and personal service activities, P – private households with employed persons, Q – extra-territorial organizations and bodies.

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice. Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 49. Coal-mines in cities of the GZM-region, 1989-2008

Cities	Coal-mines			
	Number	Coal-mines (1989)	Number	Coal-mines (2008)
Bytom	**6**	**Rozbark, Centrum, Miechowice, Szombierki, Powstańców Śl., Bobrek**	1	**Bobrek-Centrum**
Chorzów	**1**	Barbara-Chorzów	0	
Dąbrowa Górnicza	**1**	Paryż	0	
Gliwice	**2**	Gliwice, Sośnica	0	
Jaworzno	**2**	Jan Kanty, Jaworzno	1	Jaworzno
Katowice	**6**	Katowice, Kleofas, Murcki, Wieczorek, Staszic, Wujek	4	Murcki, Wieczorek, Wujek-Śląsk, Staszic
Mysłowice	**2**	Mysłowice, Wesoła	1	Mysłowice-Wesoła
Piekary Śląskie	**2**	Andaluzja, Julian	1	Piekary
Ruda Śląska	**5**	Halemba, Pokój, Nowy Wirek Śląsk, Wawel	3	Halemba-Wirek, Bielszowice, Pokój
Siemianowice Śląskie	1	Siemianowice	0	
Sosnowiec	**4**	**Kazimierz-Juliusz, Sosnowiec, Niwka-Modrzejów, Porąbka-Klimontów**	**1**	**Kazimierz-Juliusz**
Świętochłowice	1	Polska	0	
Tychy	2	Piast, Ziemowit	0	
Zabrze	3	Pstrowski, Makoszowy, Zabrze-Bielszowice	2	Sośnica-Makoszowy, Siltech
The GZM	**38**		**14**	

Source: M. Tkocz, in: Górnośląski Związek Metropolitalny, 2008, p. 213.

Table 50. Employment in coal-mines in cities of Bytom and Sosnowiec,, 1989-2008

Cities	*1989*			*2008*		
	Number of coal-mines	Employment (in thousands and percent of total)	Average employment in 1 coal-mine	Number of coal-mines	Employment (in thousands and percent of total)	Average employment in 1 coal-mine
Bytom	6	27,8 (53,2%)*	4,7	1	3,7 (12%)	3,7
Sosnowiec	4	21,5 (49,2%)*	5,4	1	1,9 (12%)	1,9

Source: M. Tkocz, in: Górnośląski Związek Metropolitalny, 2008, p. 213; information from The Katowicki Holding Węglowy, Inc.,

Table 51. Employment in coal-mines in cities of Bytom and Sosnowiec, 1989, 1998, 2008

1989		1998		2008	
CITY OF BYTOM					
Name of coal-mine	**Employment**	**Name of coal-mine**	**Employment**	**Name of coal-mine**	**Employment**
Bobrek	3.7	Bobrek-Miechowice	4.1	Bobrek-Centr.	3.7
Miechowice	3.5	-	-	-	-
Powstańców Śl.	7.8	Powstańców Śląskich	2.0	-	-
Rozbark	4.7	Rozbark	2.4	-	-
Centrum	4.6	Centrum-Szombierki	2.4	-	-
Szombierki	3.5	-	-	-	-
1989		**1998**		**2008**	
CITY OF SOSNOWIEC					
Name of coal-mine	**Employment**	**Name of coal-mine**	**Employment**	**Name of coal-mine**	**Employment**
Niwka-Modrzejów	5.5	Niwka-Modrzejów	2.6	-	-
Kazimierz-Juliusz	4.9	Kazimierz-Juliusz	2.5	Kazimierz-Juliusz	1.9
Porąbka-Klimontów	6.5	Porąbka-Klimontów	1.2	-	-
Sosnowiec	4.6	-	-	-	-

Source: M. Tkocz, in: Górnośląski Związek Metropolitalny, 2008, p. 213; information from The Katowicki Holding Węglowy, Inc.,

Table 52. Industrial plants by branches in Sosnowiec, 1975 and contemporary situation

Name of industrial plants by branches	Employment (branches total)	Situation in 2009
COALMINING	21736	
KWK „Sosnowiec”		CLOSED
KWK „Niwka-Modrzejów”		CLOSED
KWK „Kazimierz-Juliusz”		PROCESS OF RESTRUCTURING
KWK „Porąbka-Klimontów”		CLOSED
METALLURGY	6692	
Huta im. Cedlera		PROCESS OF RESTRUCTURING (ARCELOR MITTAL STEEL)
Huta im. Buczka		PROCESS OF RESTRUCTURING
METALLURGICAL INDUSTRY	5088	
Sosn. Odlewnie Żeliwa „Sostal”		PROCESS OF RESTRUCTURING
ZPP „Prema-Milmet”		OPEN (*VITKOVICE-MILMET*)
SZLiD „Linodrut”		PROCESS OF RESTRUCTURING
Sosnowieckie Zakłady Przemysłu Teren.		CLOSED
SIN „Promet”		OPEN
SP „Przyszłość”		PROCESS OF RESTRUCTURING
Fabryka Opakowań Blaszanych „Decorum”		CLOSED
ENGINEERING	3239	
ZUAP „Mera”		CLOSED
Fabryka Silników Malej Mocy „Silma”		CLOSED
AUTOMOTIVE	1668	
FSM, Plant no. 7		OPEN (*MAGNETI MARELLI*)
BUILDING MATERIALS PRODUCTION	321	
PMIiB „Izolacja”		CLOSED
ZPC – Biuro Dokumentacji Tech.-Ruchowej		CLOSED
TIMBER INDUSTRY	329	
Stolarsko-Tapicerska SP „Meblosprzęt”		CLOSED
TEXTILE INDUSTRY	6151	
Przędzalnia Czesankowa „INTERTEX”		CLOSED
Sosn. Przędzalnia Czesankowa „POLITEX”		CLOSED
ZPD „Wanda”		CLOSED
SP „Włóknochemia”		CLOSED
CLOTHING INDUSTRY	1234	
Bytomskie Zakł. Odzieżowe „BYTOM” – 4		PROCESS OF RESTRUCTURING
SI Odzieżowo-Dziewiarska „Femina”		CLOSED
SI „Naprzód”		CLOSED
FOOD INDUSTRY	996	
OSM „WSS- Społem”		PROCESS OF RESTRUCTURING
PRINT INDUSTRY	70	
Sosn. Zakłady Graficzne Przemysłu Teren.		CLOSED
INDUSTRIAL SECTOR IN SOSNOWIEC	**53541**	

Explanation: Process of restructuring means that index of contemporary employment is lower twice or over than in the 70s.

Source: By authors and Sosnowiec....[1977].

Table 53. Concentration of new economic and social activities in cities of Bytom and Sosnowiec

Concentration of new economic and social activities	Localization	Economic profile	Evolution of development; structure
Bytom-Łagiewniki	*Road no. 79*	Service, shopping-center	Initial; focused
Bytom-Stroszek	*Road no.11*	Service, shopping-center, sport and rest	Initial; dispersed
Sosnowiec-The Northern Pogoń	Road no. 96	Education, wholesale companies, hospital service	Initial; focused
Sosnowiec-Środula	Road no. 96	Shopping-centers, logistics, Service	Advanced; focused
Sosnowiec-Zagórze (Józefów)	Road no. 96	Shopping-centers, exhibition, service	Advanced; dispersed
Sosnowiec-Milowice	Road no. 86	Industry, shopping-centers, sport and rest, tourism	Initial; dispersed
Sosnowiec-Dańdówka/Klimontów	Road no. 1	Industry, residential, education	Initial; focused
Sosnowiec-Niwka	Roads no. 1 & 79	Industry, logistics, education	Initial; dispersed
Sosnowiec-Sielec/Środula	City roads	Industry, shopping-centers, service, sport and rest	Initial; dispersed

Source: R. Krzysztofik, J. Runge.

Table 54. The Subzone Sosnowiec-Dąbrowa of The Katowice Special Economic Zone (The KSEZ) in city of Sosnowiec

The KSEZ-Sosnowiec: Areas	Companies	Economic profile	Capital	Employment (2009)
„Milowice"„ Complex 1	*Polskapresse*	Printing	German	77
	Duda-Silesia	Meat-industry	Polish	1248
	Gimplast	Plastic-industry	Italian	63
„Dańdówka" Complex 2	*Caterpillar*	Metallurgical	American	195
	Ergom Poland	Automotive	Italian	305
	Ergomoulds Poland	Plastic-industry	Italian	237
	Bitron	Domestic appliances	Italian	885
	Nadwozia-Partner	Automotive	Polish	75
	Process Electronics	Electronics	Canadian	47
„Mikołajczyka" Complex 3	*Magneti Marelli Exhaust System*	Automotive	Italian	153
„Narutowicza" Complex 4	*Segu Polska*	Automotive	German	219
	Ferroli	Engineering	Italian	210
„Zaruskiego" Complex 5	*Automotive Lighting Poland*	Automotive	Italian	1042
All areas	-	-	-	**4756**

Source: Information of The Subzone Sosnowiec-Dąbrowa of The Katowice Special Economic Zone in Sosnowiec.

Table 55. Central functions and some metropolitan level cities of the GZM-region

Hierarchical level	Name of level	1993	2001
1	***Capital***	[Warsaw]	[Warsaw]
2	***Regional***	Katowice	Katowice
3	***Subregional***	Gliwice	Gliwice
4	***Mezoregional-strongly developed***	Chorzów, **Sosnowiec,** Tychy	**Sosnowiec**, Tychy
5	***Mezoregional-others***	**Bytom,** Dąbrowa Górnicza, Chorzów, Mysłowice, Ruda Śląska, Zabrze, Siemianowice Śląskie, Piekary Śląskie	**Bytom,** Chorzów, Dąbrowa Górnicza, Mysłowice, Ruda Śląska, Zabrze, Siemianowice Śląskie, Piekary Śląskie
6	***Local***	Jaworzno, Świętochłowice	Jaworzno, Świętochłowice

Source: By Sokołowski, 2006.

Table 56. Metropolitan and central functions rate of cities in Poland. Part I

Hierarchical level	Name of level	Cities	Population (2001)
3	Subregional (118.2>375.2)	Rzeszów	160.8
		Białystok	289.8
		Kielce	213.2
		Bydgoszcz	375.2
		Toruń	210.3
		Olsztyn	173.4
		Opole	130.3
		Gliwice	204.7
		Zielona Góra	118.2
		Bielsko-Biała	178.8
4	Mezoregional-strongly developed (32.1>252.6)	Częstochowa	252.6
		Sopot	42.2
		Koszalin	108.7
		Gdynia	253.5
		Radom	230.3
		Pila	75.0
		Gorzów Wlkp.	125.9
		SOSNOWIEC	233.9
		Kalisz	109.9
		Nowy Sącz	84.4
		Jelenia Góra	89.9
		Słupsk	100.3
		Legnica	107.2
		Płock	128.6
		Leszno	63.2
		Siedlce	76.6
		Piaseczno	32.1
		Tarnów	120.6
		Zamość	67.2
		Piotrków Tryb.	81.1
		Włocławek	121.7
		Tychy	133.2
		Krosno	48.5
		Cieszyn	36.6

Source: R. Krzysztofik, J. Runge by Sokolowski, 2006; Basic Urban Statistics, 2004.

Table 57. Metropolitan and central functions rate of cities in Poland. Part II

CITIES (13,5>196,5)	POPULATION
Dąbrowa Górnicza	**132,6**
Żywiec	32,2
BYTOM	**195,0**
Tarnowskie Góry	62,6
Chorzów	**118,3**
Pszczyna	25,8
Wodzisław Śląski	49,9
Mysłowice	**75,9**
Zawiercie	54,4
Ustroń	15,5
Rybnik	143,0
Będzin	59,6
Ruda Śląska	**151,6**
Myszków	33,4
Racibórz	59,9
Zabrze	**196,5**
Lubliniec	24,7
Skoczów	15,0
Żory	63,5
Kłobuck	13,5
Mikołów	38,2
Jastrzębie Zdrój	97,3
Czeladź	35,2
Siemianowice Śląskie	**74,7**
Piekary Śląskie	**61,1**
Czechowice-Dziedzice	35,0
Rydułtowy	22,0

Source: R. Krzysztofik, J. Runge by Sokołowski, 2006; Basic Urban Statistics, 2004.

HOUSING AND INFRASTRUCTURE QUESTIONS

Table 58. Population density and housing questions in Bytom and in Sosnowiec, 1988-2007

INDEX	BYTOM			SOSNOWIEC		
	1988	**2001**	**2007**	**1988**	**2001**	**2007**
Population density (total city)	2748	2902	2661	2842	2635	2444
Number of housing units (in thousands)	79.0	71.7	72.3	86.6	88.8	90.8
Average living area in m² per person	18.3	19.0	21.2	17.5	19.6	22.1
Number of households which have problems with regular payments for flat	-	24776	-	-	25211	-
Percentage of households which have problems with regular payments for flat	-	33	-	-	34.5	
Average debt in PLN and in Euro (in brackets) for 1 household	-	1662 (400)	-	-	772 (180)	-
It's mean no payments since ..... months	-	5	-	-	2	-

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 59. Structure of dwellings in cities of the GZM-region, 2008

Cities	Total	Dwellings in absolute numbers			
		Housing co-operatives	Municipal	Companies	Natural persons
Bytom	**72279**	**19889**	**17861**	**9979**	**24085**
Chorzów	50300	17524	11698	1425	19211
Dąbrowa Górn.	50058	20626	6017	1857	21456
Gliwice	74922	22882	15231	4408	31162
Jaworzno	33334	8414	2773	543	21501
Katowice	133636	58722	18775	10602	43149
Mysłowice	27183	6247	2527	4784	13451
Piekary Śląskie	23297	5420	4478	1015	12229
Ruda Śląska	56719	31145	8548	2907	13490
Siemianowice Śl.	29936	16255	4905	2073	6507
Sosnowiec	**90828**	**41437**	**11723**	**8000**	**29214**
Świętochłowice	21916	8432	6476	465	6506
Tychy	46264	21497	6212	619	16970
Zabrze	67181	17637	18206	5233	25769

Source: Statistical Office in Katowice.

Table 60. Structure of depopulation process 1990-2009. Case of some staircase in block in Sosnowiec

FLAT NUMBER	FAMILY			NUMBER OF PERSONS	AVERAGE AGE	PROFESSIONS		
	PARENTS	CHILDREN	OTHERS			MALE	FEMALE	OTHERS OR CHILDREN
31	2=M+F	0	0	**2**	40	B(I4)	B (I4)	-
32	1=(┼)+F	2=D+D	0	**3**	25	-	B (I4)	-
33	2=M+F	1=S	0	**3**	25	B(I3)	B (S7)	-
34	2=M+F	2=D+S	0	**4**	35	B(I3)	W (S14)	-
35	2=M+F	0	0	**2**	60	B(I4)	P	-
36	2=M+F	1=S	0	**3**	35	W (S5)	W (S7)	-
37	2=M+F	2=D+S	0	**4**	30	B (S9)	W (I4)	-
38	2=M+F	1=D	0	**3**	35	B(I4)	B(I4)	-
39	2=M+F	2=S+S	0	**4**	30	B(I4)	B(I4)	-
40	2=M+F	2=S+S	0	**4**	30	B(I4)	B(I4)	-
41	2=M+F	1=S	0	**3**	35	B(S9)	B(S15)	-
42	2=M+F	1=S	0	**3**	35	W(I4)	W(I4)	-
43	2=M+F	1=D+D↓1	0	**3**	40	B(I4)	W(I4)	-
44	1=(‖)+F	1=D	0	**2**	25	-	W(I4)	-
45	2=M+F	1=D+D↓2	0	**3**	35	B(I3)	B(I4)	-
TOTAL	**13M+15F (28)**	**10D+10S (20)**	**0 (0)**	**46**	**-**	**B(12) W(2) P(0)**	**B(8) W(6) P(1)**	**- - -**
AVERAGE OR DOMINATION	**1.9**	**1.3**	**0**	**3.2**	**35**			
	3.2					**B(I4)**	**B(I4)**	**-**

YEAR: ***1990*** **CITY:** ***SOSNOWIEC*** **QUARTER:** ***DAŃDÓWKA***
BLOCK: ***I*** **STAIRCASE NUMBER:** ***?***

Signatures or commentaries

Column 2:

M-male (husband), F-female (wife), (┼)- person is dead, (‖)-person is not living in this flat (divorce or separation),
M↓, F↓(1,2,3)-internal migration [*1-the same quarter, 2-the same city, 3-city of the Katowice Conurbation*],
M↑, F↑(1,2,3)- external migration [*1-other settlement of the Katowice Conurbation or in the Silesian Province , 2-other place in Poland, 3-other place in the world*]

Column 3:

S-son, D-daughter,
M↓, F↓(1,2,3)-internal migration [*1-the same quarter, 2-the same city, 3-city of the Katowice Conurbation*],
M↑, F↑(1,2,3)- external migration [*1-other settlement of the Katowice Conurbation or in the Silesian Province , 2-other place in Poland, 3-other place in the world*]

Column 6:

Value rounded off to half of ten

Column 7,8,9:

B-blue collar, W-white collar, P-pensioners, U-unemployed person, S-service sector, I-industry sector,
1,2,3...17-Number of the NACE sections.

Survey: R. Krzysztofik

Table 61. Structure of depopulation process 1990-2009. Case of some staircase in block in Sosnowiec

FLAT NUMBER	FAMILY			NUMBER OF PERSONS	AVERAGE AGE	PROFESSIONS		
	PARENTS	CHILDREN	OTHERS			MALE	FEMALE	OTHERS OR CHILDREN
31	1=(┼)+F	0	0	1	60	-	P	-
32	1=(┼)+F	0=D↓2+ D↓2	0	1	60	-	P	-
33	2=M+F	2=D+S	0	4	35	P	B (S7)	W(S15)
34	2=M+F	2=D+S	0	4	50	P	P	B(S15)+ W (S11)
35	**2=M+F**	**1=S**	0	3	25	B(I3)	B(I4)	-
36	0=M↓3(‖)+ F↑2(‖)	1=S	0	1	35	B(S9)	-	-
37	2=M+F	0=D↓1+ S↓3	0	2	60	P	P	-
38	1=(┼)+F	1=D	0	2	55	-	P	W(S13)
39	2=M+F	1=S+ S↑2	0	3	50	P	P	B(I4)
40	1=M+(┼)	0=S↓1+ S↓2	0	1	60	P	-	-
41	2=M+F	1=S	0	3	55	P	P	B(S15)
42	1=M+(┼)	0=S↓3	0	1	65	P	-	-
43	2=M+F	0=D↓1	0	2	65	P	P	-
44	1=(‖)+F	1=D	0	2	45	-	P	W(S13)
45	0=(┼)+(┼)	0=D↓3	0	**0**	0	-	-	
TOTAL	**9M+11F(20)**	**4D+6S (10)**	**0 (0)**	**30**	**-**	**B(2) W(0) P(8)**	**B(2) W(0) P(9)**	**B(3) W(4) -**
AVERAGE OR DOMINATION	**1.3**	**0.7**	**0**	**2**	**50**	**-**	**-**	**-**
	2					**P**	**P**	**W**

YEAR: ***2009*** **CITY:** ***SOSNOWIEC*** **QUARTER:** ***DAŃDÓWKA***
BLOCK: ***I*** **STAIRCASE NUMBER:** ***?***

Signatures or commentaries

Column 2:

M-male (husband), F-female (wife), (┼)- person is dead, (‖)-person is not living in this flat (divorce or separation),
M↓, F↓(1,2,3)-internal migration [*1-the same quarter, 2-the same city, 3-city of the Katowice Conurbation*],
M↑, F↑(1,2,3)- external migration [*1-other settlement of the Katowice Conurbation or in the Silesian Province , 2-other place in Poland, 3-other place in the world*]

Column 3:

S-son, D-daughter,
M↓, F↓(1,2,3)-internal migration [*1-the same quarter, 2-the same city, 3-city of the Katowice Conurbation*],
M↑, F↑(1,2,3)- external migration [*1-other settlement of the Katowice Conurbation or in the Silesian Province , 2-other place in Poland, 3-other place in the world*]

Column 6:

Value rounded off to half of ten

Column 7,8,9:

B-blue collar, W-white collar, P-pensioners, U-unemployed person, S-service sector, I-industry sector,
1,2,3...17-Number of the NACE sections.

Survey: R. Krzysztofik

Table 62 Dynamics of depopulation process 1990-2009. Case of some staircase in block in Sosnowiec

FLAT NUMBER	FAMILY			NUMBER OF PERSONS	INCREASE OF AGEING RATE	MIGRATIONS		
	PARENTS	CHILDREN	OTHERS			INTERNAL	EXTERNAL	TOTAL
31	-1	0	0	**-1**	+20	-	-	-
32	0	-2	0	-2	+35	2	-	2
33	0	+1	0	+1	+10	-	-	-
34	0	0	0	0	+15	-	-	-
35	0 (-2+2)	+1	0	+1	-35	-	-	-
36	-2	0	0	-2	0	1	1	2
37	0	-2	0	-2	+30	2	-	2
38	-1	0	0	-1	+20	-	-	-
39	0	-1	0	-1	+20	-	1	1
40	-1	-2	0	-3	+30	2	-	2
41	0	0	0	0	+20	-	-	-
42	-1	-1	0	-2	+30	1	-	1
43	0	-1	0	-1	+25	1	-	1
44	0	0	0	0	+25	-	-	-
45	-2	-1	0	-3	0	1	-	1
TOTAL	**-8**	**-8**	**0 (0)**	**-16**	**-**	**10**	**2**	**12**
AVERAGE OR DOMINATION	**0.5**	**0.5**	**0**	**3.2**	**35**	**0.7**	**0.1**	**0.8**
	1							

YEARS: ***1990-2009*** **CITY:** ***SOSNOWIEC*** **QUARTER:** ***DAŃDÓWKA***

Source: R. Krzysztofik, J. Runge.

Table 63. Number of persons per 1 dwelling in cities of the GZM-region, 1988-2008

Cities	*Number of persons per 1 dwelling*		
	1988	*2001*	*2008*
Bytom	***2.83***	***2.73***	***2.56***
Chorzów	2.84	2.32	2.26
Dąbrowa Górn.	2.95	2.61	2.57
Gliwice	2.97	2.79	2.63
Jaworzno	3.29	3.05	2.87
Katowice	2.73	2.42	2.34
Mysłowice	3.12	2.96	2.76
Piekary Śląskie	2.95	2.77	2.54
Ruda Śląska	2.92	2.62	2.55
Siemianowice Śl.	2.99	2.49	2.39
Sosnowiec	**2.90**	**2.62**	**2.45**
Świętochłowice	2.67	2.52	2.49
Tychy	3.40	2.95	2.81
Zabrze	2.94	2.85	2.81

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 64. Investment outlays in enterprises by selected sections in cities of the GZM-region in PLN, 2007

Cities	Grand total	Of which						
		Industry		Construction	Trade and repair	Tansport, storage and communi-cation	Financial intermedia-tion	Real estate, renting, and business activities
		Total	Of which manufacturing					
	In millions PLN							
Bytom	**243.0**	**109.5**	**21.5**	**15.8**	**24.8**	**41.1**	**1.6**	**31.6**
Chorzów	327.2	166.6	157.1	4.4	28.4	42.3	2.1	14.8
Dąbrowa Górn.	1376.3	1263.2	1212.9	8.0	28.5	27.6	4.6	22.6
Gliwice	1213.0	845.6	747.7	17.6	78.8	65.0	5.3	136.4
Jaworzno	220.5	166.3	35.4	6.5	2.1	26.2	1.0	2.1
Katowice	1847.5	760.6	312.1	81.5	377.1	169.0	97.8	235.7
Mysłowice	233.0	139.8	38.5	33.5	40.7	8.2	1.5	5.1
Piekary Śl.	77.0	46.6	13.4	1.5	11.8	0.8	1.1	8.6
Ruda Śl.	279.0	142.0	18.8	12.1	71.1	5.5	2.6	17.3
Siemianowice	192.7	98.3	84.3	14.5	47.1	6.9	0.1	7.4
Sosnowiec	**585.2**	**394.3**	**333.5**	**25.4**	**63.8**	**56.1**	**3.2**	**24.5**
Świętochłowice	56.4	36.2	29.0	2.6	4.7	1.6	1.0	0.1
Tychy	1842.8	1686.0	1648.8	2.3	42.2	32.6	3.1	51.4
Zabrze	484.5	171.7	76.4	20.1	137.2	28.6	3.5	80.2

Source: Statistical Office in Katowice.

Table 65. Investment outlays in enterprises by selected sections in cities of the GZM-region in Euro, 2007

Cities	Grand total	Of which						
		Industry		Construction	Trade and repair	Tansport, storage and communi-cation	Financial intermedia-tion	Real estate, renting, and business activities
		Total	Of which manufacturing					
	In millions Euro							
Bytom	**59.1**	**26.6**	**5.2**	**3.8**	**6.0**	**10.0**	**1.1**	**7.7**
Chorzów	79.6	4.0	38.2	1.1	6.9	10.3	0.5	3.6
Dąbrowa Górn.	334.8	307.3	295.1	1.9	6.9	6.7	1.1	5.5
Gliwice	295.1	205.7	181.9	4.3	19.2	15.8	1.3	33.2
Jaworzno	53.6	40.5	8.6	1.6	0.5	6.4	0.2	0.5
Katowice	449.5	185.1	75.9	19.8	9.7	41.1	23.8	57.3
Mysłowice	56.7	34.0	9.4	8.2	9.9	1.9	0.4	1.2
Piekary Śl.	18.7	11.3	3.2	0.4	2.9	0.2	0.3	2.1
Ruda Śl.	67.9	34.5	3.6	3.6	17.4	1.3	0.6	4.2
Siemianowice	46.9	23.9	3.5	3.5	11.4	1.7	0.0	1.8
Sosnowiec	**142.4**	**95.9**	**6.2**	**6.2**	**15.5**	**13.6**	**0.8**	**6.0**
Świętochłowice	13.7	8.8	0.6	0.6	1.1	0.4	0.2	0.0
Tychy	448.8	410.2	0.6	0.6	10.3	7.9	0.8	12.5
Zabrze	117.9	4.2	4.9	4.9	33.4	6.9	0.8	19.5

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 66. Investment expenditures on environmental protection (in PLN) in cities of the GZM-region (2007)

Cities	Investment expenditures on environmental protection			
	Total	Of which on		
		Waste water management and protection of waters	Protection of air and climate	Waste management, protection and reclamation of soils as well as underground and surface waters
	In thousands PLN			
Bytom	**39404.7**	**20739.7**	**2645.8**	**15770.6**
Chorzów	33372.2	11049.4	4373.0	4615.1
Dąbrowa Górn.	27339.2	7549.6	13881.8	5860.0
Gliwice	71890.5	47190.0	16782.1	6471.0
Jaworzno	49659.5	3869.8	44436.0	162.1
Katowice	72417.5	40065.7	9698.0	9902.4
Mysłowice	5046.9	3353.9	1693.0	-
Piekary Śląskie	7009.8	5657.3	1352.5	-
Ruda Śląska	40056.7	34255.8	-	865.2
Siemianowice Śl.	1803.3	1222.3	-	57.0
Sosnowiec	**71852.0**	**66408.6**	**1821.0**	**3622.4**
Świętochłowice	9705.3	5127.0	3345.6	1093.0
Tychy	38162.8	22717.6	3063.3	338.0
Zabrze	19256.9	4585.9	3381.0	2189.0

Source: Statistical Office in Katowice.

Table 67. Investment expenditures on environmental protection (in Euro) in cities of the GZM-region (2007)

Cities	Investment expenditures on environmental protection			
	Total	Of which on		
		Waste water management and protection of waters	Protection of air and climate	Waste management, protection and reclamation of soils as well as underground and surface waters
	In thousands Euro			
Bytom	**9587**	5046	**644**	**3837**
Chorzów	8119	2688	1064	1123
Dąbrowa Górn.	6651	1836	3377	1426
Gliwice	17491	11481	4083	1574
Jaworzno	12052	941	10811	39
Katowice	17620	9748	2359	2409
Mysłowice	1228	816	412	-
Piekary Śląskie	1705	1376	329	-
Ruda Śląska	9746	8334	-	210
Siemianowice Śl.	438	297	-	14
Sosnowiec	**1748**	**16157**	**443**	**881**
Świętochłowice	2361	1247	814	266
Tychy	9285	5527	745	82
Zabrze	4685	1116	823	532

Source: Statistical Office in Katowice.

Table 68. Revenue and expenditure of cities of the GZM-region budgets per capita, 2007

Cities	Revenue in PLN and (Euro)		Expenditure in PLN and (Euro)		
	Total	Of which own revenue	Total	Of which	
				Current expenditure	Investment expenditure
Bytom	**2570 (627)**	**1329 (323)**	**2544 (619)**	**1656 (403)**	**317 (77)**
Chorzów	3024 (736)	1693 (412)	2831 (689)	1503 (366)	322 (78)
Dąbrowa Górn.	3280 (798)	2350 (572)	3176 (773)	1999 (486)	319 (78)
Gliwice	3643 (886)	2377 (578)	3644 (887)	2004 (488)	924 (225)
Jaworzno	2923 (711)	1822 (443)	3084 (750)	1846 (449)	631 (153)
Katowice	3656 (889)	2654 (646)	3244 (789)	1680 (409)	665 (162)
Mysłowice	4014 (977)	3094 (753)	3141 (764)	1893 (461)	289 (70)
Piekary Śląskie	2193 (534)	1301 (316)	2045 (498)	1432 (348)	37 (9)
Ruda Śląska	3522 (857)	1782 (434)	3585 (872)	1750 (426)	1213 (295)
Siemianowice Śl.	2667 (649)	1694 (412)	2621 (638)	1698 (413)	182 (44)
Sosnowiec	**2723 (662)**	**1631 (397)**	**2586 (629)**	**1435 (349)**	**617 (150)**
Świętochłowice	2265 (551)	1204 (293)	2327 (566)	1361 (331)	348 (85)
Tychy	3278 (798)	2089 (508)	2903 (706)	1590 (387)	625 (152)
Zabrze	2899 (705)	1601 (389)	2756 (670)	1549 (377)	474 (115)

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 69. Revenue of the GZM's cities budgets by type in PLN, 2001

Cities	Total	Own revenue	Appropriated allocations from the state budget	Allocations received from appropriated funds	Appropriated allocations received for tasks realized on the basis of self-government agreements	General subsidies	Funds for additional financing of own tasks from other sources
	In thousands PLN						
Bytom	381930	197533	68396	752	38	115203	8
Chorzów	235617	88584	67229	412	-	76192	3200
Dąbrowa Górn.	266592	143800	38522	23	10	84016	221
Gliwice	487652	280717	77776	305	416	128438	-
Jaworzno	177376	90579	28280	185	-	57053	1279
Katowice	866364	450022	160771	616	296	253348	1311
Mysłowice	136049	71751	21120	4	-	43174	-
Piekary Śląskie	89283	41209	15952	6	-	32116	-
Ruda Śląska	280754	153006	43288	103	-	82615	1742
Siemianowice Śl.	126143	72147	19527	553	3	33913	-
Sosnowiec	434319	245802	63259	1732	-	122756	770
Świętochłowice	93466	38711	27041	6	-	27708	-
Tychy	285058	142720	45075	213	2308	88913	5829
Zabrze	401078	219722	57807	197	-	118074	5278

Source: Statistical Office in Katowice.

Table 70. Revenue of the GZM's cities budgets by type in Euro, 2001

Cities	Total	Own revenue	Appropriated allocations from the state budget	Allocations received from appropriated funds	Appropriated allocations received for tasks realized on the basis of self-government agreements	General subsidies	Funds for additional financing of own tasks from other sources
	In thousands Euro						
Bytom	92927	48062	16641	183	9	28030	1.9
Chorzów	57328	21554	16357	100	-	18538	779
Dąbrowa Górn.	64864	34987	9373	5.6	2.4	20442	54
Gliwice	118650	68301	18924	74	101	31250	-
Jaworzno	43157	22039	6881	45	-	13881	311
Katowice	210794	109494	39117	150	72	61642	319
Mysłowice	33102	17458	5139	1.0	-	10504	-
Piekary Śląskie	21724	10027	3881	1.5	-	7814	-
Ruda Śląska	68310	37228	10532	25	-	20101	424
Siemianowice Śl.	30692	17554	4751	135	0.7	8251	-
Sosnowiec	105674	59806	15392	421	-	29868	187
Świętochłowice	22741	9419	6579	1.5	-	6742	-
Tychy	69357	34725	10967	52	562	21633	1418
Zabrze	97585	53460	14065	48	-	28728	1284

Source: R. Krzysztofik, J. Runge by Statistical Office in Katowice.

Table 71. Revenue of the GZM-region's cities budgets by type in PLN, 2007

Cities	Total	Own revenue	Appropriated allocations from the state budget	Allocations received from appropriated funds	Appropriated allocations received for tasks realized on the basis of self-government agreements	General subsidies	Funds for additional financing of own tasks from other sources
	In thousands PLN						
Bytom	**477501**	**246915**	**72873**	**1934**	**518**	**130584**	**24676**
Chorzów	343942	192617	47384	667	2716	92061	8495
Dąbrowa Górn.	424092	303830	34669	570	351	82706	1965
Gliwice	720811	470395	56469	1911	4573	144800	42623
Jaworzno	279535	174174	26547	106	297	76430	10981
Katowice	1146119	832019	86339	628	7945	214144	5043
Mysłowice	30116	232071	23642	475	408	44361	158
Piekary Śląskie	129875	77030	20222	123	287	31490	720
Ruda Śląska	510416	258226	67563	1297	547	132602	50180
Siemianowice Śl.	192045	121950	28805	573	271	37581	2865
Sosnowiec	**607990**	**364131**	**55607**	**244**	**1172**	**126482**	**60354**
Świętochłowice	123983	65910	22439	799	77	34723	33
Tychy	427281	272315	35174	4895	7691	87201	20004
Zabrze	549820	303633	67666	6295	680	159721	11824

Source: Statistical Office in Katowice.

Table 72. Revenue of the GZM-region's cities budgets by type in Euro, 2007

Cities	Total	Own revenue	Appropriated allocations from the state budget	Allocations received from appropriated funds	Appropriated allocations received for tasks realized on the basis of self-government agreements	General subsidies	Funds for additional financing of own tasks from other sources
	In thousands Euro						
Bytom	**11618**	**60076**	**17730**	**470**	**126**	**31772**	**6004**
Chorzów	83084	46865	11529	162	661	22399	2067
Daąbrowa Górn.	10318	73924	8435	139	85	20123	478
Gliwice	175380	114451	13739	465	1112	35226	10370
Jaworzno	68013	42378	6459	257	72	18596	2671
Katowice	27886	202436	21007	153	1933	1808	1227
Mysłowice	7327	56464	5752	115	99	52103	38
Piekary Śląskie	31600	18742	4920	30	70	10793	175
Ruda Śląska	124189	62829	16438	315	133	7662	12209
Siemianowice Śl.	46726	29671	7008	139	66	32263	697
Sosnowiec	**147929**	**88596**	**13529**	**59**	**285**	**9143**	**14684**
Świętochłowice	30166	16036	5459	194	19	8448	8
Tychy	10396	66256	8558	1204	1871	21217	4867
Zabrze	13377	73876	1646	1531	165	38861	2877

Source: Statistical Office in Katowice.

Table 73. Expenditure of the GZM-region's cities budgets by division in PLN, 2001

Cities	Grand total	Of which						
		Allocations	Benefits for natural persons	Total	Of which			Property expenditure
					Wages and salaries	Contributions to compulsory social security and the Labour Fund	Purchase of materials and services	
	In thousands PLN							
Bytom	**378295**	**11361**	**36340**	**306656**	**138566**	**25203**	**131179**	**6889**
Chorzów	244637	24222	27707	132156	80478	14009	32841	45535
Dąbrowa Górn.	278722	16792	21409	181250	105521	17970	51459	39370
Gliwice	499362	499362	35989	346685	153772	25115	157541	66546
Jaworzno	180406	11742	13478	132813	76078	13642	38730	19395
Katowice	898864	66061	52852	488492	265572	46510	160236	257580
Mysłowice	136035	10506	14445	94392	55815	9682	25709	10214
Piekary Śląskie	93425	3839	9801	71349	41092	7503	19939	3532
Ruda Śląska	276900	15070	25529	195975	101570	18167	70454	29674
Siemianowice	128272	3992	15781	94261	45277	8226	38290	8352
Sosnowiec	**455995**	**41008**	**32092**	**291877**	**144057**	**25308**	**104102**	**61932**
Świętochłowice	98343	5556	12747	62299	32213	5801	22190	10211
Tychy	268724	24195	21410	176137	109373	19146	41268	39567
Zabrze	391835	30902	39777	260873	110299	19878	123460	46547

Source: Statistical Office in Katowice.

Table 74. Expenditure of the GZM-region's cities budgets by division in Euro, 2001

Cities	Grand total	Of which						
		Allocations	Benefits for natural persons	Total	Of which			Property expenditure
					Wages and salaries	Contributions to compulso- ry social se- curity and the Labour Fund	Purchase of materials and services	
	In thousands Euro							
Bytom	**94042**	**2764**	**8842**	**74612**	**33714**	**6132**	**31917**	**1676**
Chorzów	59522	5893	6741	32154	19581	3408	7990	11079
Dąbrowa Górn.	67815	4085	5209	44100	25674	4372	12520	9579
Gliwice	121499	12150	8756	84352	37414	6111	38331	16191
Jaworzno	43894	2857	3279	32314	18510	3319	9423	4719
Katowice	218702	16073	12859	11885	64616	11316	38987	62671
Mysłowice	33098	2556	3514	22966	13580	2356	6255	2485
Piekary Śląskie	22731	934	2385	17360	9998	1825	4851	859
Ruda Śląska	67372	3667	6211	47682	24713	4420	17142	7220
Siemianowice	31209	971	3839	22934	11016	2001	9316	2032
Sosnowiec	**110948**	**9978**	**7808**	**71016**	**35050**	**6157**	**25329**	**15068**
Świętochłowice	23928	1352	3101	15158	7838	1411	5399	2484
Tychy	65383	5887	5209	42856	26611	4658	10041	9627
Zabrze	95337	7518	9678	63473	26837	4836	30039	11325

Source: Statistical Office in Katowice.

Table 75. Expenditure of the GZM-region's cities budgets by division in PLN, 2007

Cities	Grand total	Of which							
		Allocations	Benefits for natural persons	Total	Of which			Property expenditure	
					Wages and salaries	Contributions to compulso- ry social se- curity and the Labour Fund	Purchase of materials and services	Total	Of which investment expenditure
	In thousands PLN								
Bytom	**472699**	**14063**	**73302**	**307595**	**175908**	**32679**	**83100**	**59879**	**59000**
Chorzów	322051	44449	58203	170916	98704	18276	43421	36688	36678
Dąbrowa Górn.	410556	22645	35029	258411	134225	24191	70051	413535	41335
Gliwice	720975	45370	57592	396484	165545	29329	183737	199212	182892
Jaworzno	294860	22255	22751	176471	93613	17181	56876	66835	60401
Katowice	1017029	92505	96022	526546	291094	54018	149218	223723	208579
Mysłowice	235604	182651	26611	141974	76642	14178	44378	29464	21683
Piekary Śląskie	121060	5882	18686	84815	50257	9182	22825	5970	2225
Ruda Śląska	519459	22565	47901	253542	143566	26300	71144	176943	175763
Siemianowice	188707	9122	30478	122234	59342	10723	46760	13105	13105
Sosnowiec	**577319**	**31425**	**61661**	**320467**	**181424**	**33550**	**87093**	**138703**	**137718**
Świętochłowice	127364	7580	22048	74525	41467	7286	21786	19150	19050
Tychy	378436	43224	37357	37357	116046	21011	56829	84294	81514
Zabrze	522652	48272	69830	69830	143709	26127	108456	94227	89927

Source: Statistical Office in Katowice.

Table 76. Expenditure of the GZM-region's cities budgets by division in Euro, 2007

Cities	Grand total	Of which							
		Allocations	Benefits for natural persons	Total	Of which			Property expenditure	
					Wages and salaries	Contributions to compulsory social security and the Labour Fund	Purchase of materials and services	Total	Of which investment expenditure
	In thousands Euro								
Bytom	**115012**	**3422**	**17835**	**74840**	**42800**	**7951**	**20219**	**14659**	**14355**
Chorzów	78358	10815	16161	41585	24016	4447	10564	8926	8924
Dąbrowa Górn.	99892	5510	8523	62873	32658	5886	17044	100617	10057
Gliwice	175419	42681	14013	96468	40278	7136	44705	48470	44499
Jaworzno	71742	5415	5535	4251	22777	4180	13838	16261	14696
Katowice	247452	22507	23363	12811	70825	13143	36306	54434	50749
Mysłowice	57325	44440	6475	34543	18647	3449	10797	7169	5275
Piekary Śląskie	29455	1431	4546	20636	12228	2334	15535	1452	541
Ruda Śląska	12639	5490	11654	61689	34931	6399	17310	43052	4276
Siemianowice	45914	2219	7415	29740	14439	2609	11377	3188	3188
Sosnowiec	**140467**	**7646**	**15003**	**77972**	**44142**	**8151**	**21190**	**33747**	**33508**
Świętochłowice	30989	1844	5364	18132	10089	1772	5301	4659	4635
Tychy	92077	10516	9089	9089	28235	5112	13827	20509	19833
Zabrze	127166	11745	16990	16990	34966	6357	26388	22926	21880

Source: Statistical Office in Katowice.

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